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December 2019

City of Weston/2206
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Weston/2206

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Weston -- #2206

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Weston to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Weston.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Weston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(10.50%)	(10.50%)	(10.50%)	(10.50%)	(10.50%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**16.15%**	**16.15%**	**24.02%**	**13.76%**	**18.13%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**16.20%**	**16.20%**	**24.07%**	**13.76%**	**18.13%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Weston

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$411,253	$386,299
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(228,773)	(233,420)
Allocated pooled OPSRP UAL	34,234	30,515
Side account	0	0
Net unfunded pension actuarial accrued liability	216,714	183,394
Combined valuation payroll	189,592	202,498
Net pension UAL as a percentage of payroll	114%	91%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(10.50%)	(9.55%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,779)	($2,320)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	37,124	4,767	12.64%	36,232	4,580
Total General Service		**37,124**	**4,767**		**36,232**	**4,580**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$37,124**	**$4,767**		**$36,232**	**$4,580**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($233,420)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(10.38%)
B. Actual employer payroll	100,219
C. Payment to transition liability/(surplus)	(10,403)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(10.38%)
B. Actual employer payroll	92,578
C. Payment to transition liability/(surplus)	(9,609)
4. Supplemental payment to transition liability	0
5. Interest	(15,365)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($228,773)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(228,773)	(233,420)
2. Combined valuation payroll	189,592	202,498
3. Regular amortization factor	11.494	12.066
4. **Total transition liability/(surplus) rate**	**(10.50%)**	**(9.55%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	189,592	202,498
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Mill City/2207
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Mill City/2207

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mill City -- #2207

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mill City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mill City.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Mill City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.18%	0.18%	0.18%	0.18%	0.18%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.27%**	**25.27%**	**33.14%**	**22.88%**	**27.25%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.32%**	**25.32%**	**33.19%**	**22.88%**	**27.25%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Mill City

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$565,103	$412,323
Allocated pre-SLGRP pooled liability/(surplus)	(30,942)	(30,179)
Transition liability/(surplus)	3,618	3,816
Allocated pooled OPSRP UAL	47,040	32,570
Side account	0	0
Net unfunded pension actuarial accrued liability	584,819	418,530
Combined valuation payroll	260,519	216,140
Net pension UAL as a percentage of payroll	224%	194%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.18%	0.21%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,819)	($2,477)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	68,077	8,741	12.64%	67,453	8,526
Total General Service		**68,077**	**8,741**		**67,453**	**8,526**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$68,077**	**$8,741**		**$67,453**	**$8,526**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$3,816
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.18%
B. Actual employer payroll	118,791
C. Payment to transition liability/(surplus)	214
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.18%
B. Actual employer payroll	126,236
C. Payment to transition liability/(surplus)	227
4. Supplemental payment to transition liability	0
5. Interest	243
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$3,618**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	3,618	3,816
2. Combined valuation payroll	260,519	216,140
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**0.18%**	**0.21%**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	260,519	216,140
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Fairview/2208
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Fairview/2208

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Fairview -- #2208

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Fairview to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Fairview.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Fairview

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.54%	14.54%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.64%	14.64%	14.64%	14.64%	14.64%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.12%)	(7.12%)	(7.12%)	(7.12%)	(7.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**21.37%**	**21.37%**	**27.54%**	**17.28%**	**21.65%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.42%**	**21.42%**	**27.59%**	**17.28%**	**21.65%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Fairview

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$3,412,651	$4,218,444
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(852,433)	(849,816)
Allocated pooled OPSRP UAL	284,076	333,224
Side account	0	0
Net unfunded pension actuarial accrued liability	2,844,294	3,701,852
Combined valuation payroll	1,573,271	2,211,306
Net pension UAL as a percentage of payroll	181%	167%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.12%)	(4.62%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($23,061)	($25,338)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$273,038	$46,444	17.17%	$268,745	$46,144
Tier 2 General Service	12.84%	398,259	51,136	12.64%	389,270	49,204
Total General Service		**671,297**	**97,580**		**658,015**	**95,348**
Tier 1 Police & Fire	22.20%	0	0	22.26%	61,953	13,791
Tier 2 Police & Fire	20.00%	0	0	20.05%	107,803	21,615
Total Police & Fire		**0**	**0**		**169,756**	**35,406**
Total		**$671,297**	**$97,580**		**$827,771**	**$130,754**
Total normal cost rate						
General Service			**14.54%**			**14.49%**
Police & Fire			**20.71%**			**20.86%**
Aggregate (Default)			**14.54%**			**15.80%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($849,816)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.67%)
B. Actual employer payroll	711,004
C. Payment to transition liability/(surplus)	(26,094)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.67%)
B. Actual employer payroll	777,700
C. Payment to transition liability/(surplus)	(28,542)
4. Supplemental payment to transition liability	0
5. Interest	(57,253)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($852,433)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(852,433)	(849,816)
2. Combined valuation payroll	1,573,271	2,211,306
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(7.12%)**	**(4.62%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,573,271	2,211,306
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Monroe/2209
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Monroe/2209

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Monroe/2209

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Monroe -- #2209

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Monroe to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Monroe.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Monroe

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(15.64%)	(15.64%)	(15.64%)	(15.64%)	(15.64%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**13.95%**	**12.75%**	**18.88%**	**8.62%**	**12.99%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.00%**	**12.80%**	**18.93%**	**8.62%**	**12.99%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Monroe

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$256,854	$262,972
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(140,866)	(158,259)
Allocated pooled OPSRP UAL	21,381	20,773
Side account	0	0
Net unfunded pension actuarial accrued liability	137,369	125,486
Combined valuation payroll	118,412	137,850
Net pension UAL as a percentage of payroll	116%	91%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(15.64%)	(13.81%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,736)	($1,580)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($158,259)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(17.27%)
B. Actual employer payroll	88,442
C. Payment to transition liability/(surplus)	(13,549)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(17.27%)
B. Actual employer payroll	86,847
C. Payment to transition liability/(surplus)	(13,305)
4. Supplemental payment to transition liability	0
5. Interest	(9,461)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($140,866)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(140,866)	(158,259)
2. Combined valuation payroll	118,412	137,850
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(15.64%)**	**(13.81%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	118,412	137,850
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Jefferson/2211
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Jefferson/2211

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Jefferson/2211

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jefferson -- #2211

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jefferson to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jefferson.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Jefferson

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.99%	14.99%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(54.19%)	(54.19%)	(54.19%)	(54.19%)	(54.19%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Jefferson

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$764,703	$692,281
Allocated pre-SLGRP pooled liability/(surplus)	(41,871)	(50,669)
Transition liability/(surplus)	(1,453,166)	(1,421,846)
Allocated pooled OPSRP UAL	63,655	54,685
Side account	0	0
Net unfunded pension actuarial accrued liability	(666,679)	(725,549)
Combined valuation payroll	352,537	362,893
Net pension UAL as a percentage of payroll	(189%)	(200%)
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(54.19%)	(47.14%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,167)	($4,158)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$82,783	$14,081	17.17%	$72,797	$12,499
Tier 2 General Service	12.84%	77,750	9,983	12.64%	86,011	10,872
Total General Service		**160,533**	**24,064**		**158,808**	**23,371**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$160,533**	**$24,064**		**$158,808**	**$23,371**
Total normal cost rate						
General Service			**14.99%**			**14.72%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.99%**			**14.72%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,421,846)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(20.77%)
B. Actual employer payroll	200,642
C. Payment to transition liability/(surplus)	(34,296)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(20.77%)
B. Actual employer payroll	186,740
C. Payment to transition liability/(surplus)	(31,985)
4. Supplemental payment to transition liability	0
5. Interest	(97,601)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,453,166)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,453,166)	(1,421,846)
2. Combined valuation payroll	352,537	362,893
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(54.19%)**	**(47.14%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	352,537	362,893
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

Town of Lakeview/2212
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
Town of Lakeview/2212

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Town of Lakeview/2212

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Town of Lakeview -- #2212

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Town of Lakeview to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Town of Lakeview.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Town of Lakeview

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.15%	12.84%	21.57%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(12.48%)	(12.48%)	(12.48%)	(12.48%)	(12.48%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**17.92%**	**12.61%**	**21.34%**	**10.22%**	**14.59%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**17.97%**	**12.66%**	**21.39%**	**10.22%**	**14.59%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

Town of Lakeview

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,004,380	$1,748,348
Allocated pre-SLGRP pooled liability/(surplus)	(109,750)	(127,964)
Transition liability/(surplus)	(877,375)	(916,774)
Allocated pooled OPSRP UAL	166,849	138,106
Side account	0	0
Net unfunded pension actuarial accrued liability	1,184,104	841,716
Combined valuation payroll	924,042	916,483
Net pension UAL as a percentage of payroll	128%	92%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(12.48%)	(12.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13,544)	($10,501)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	113,651	14,593	12.64%	167,727	21,201
Total General Service		**113,651**	**14,593**		**167,727**	**21,201**
Tier 1 Police & Fire	22.20%	125,771	27,921	22.26%	111,688	24,862
Tier 2 Police & Fire	20.00%	51,013	10,203	20.05%	48,720	9,768
Total Police & Fire		**176,784**	**38,124**		**160,408**	**34,630**
Total		**$290,435**	**$52,717**		**$328,135**	**$55,831**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**21.57%**			**21.59%**
Aggregate (Default)			**18.15%**			**17.01%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($916,774)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(10.24%)
B. Actual employer payroll	500,420
C. Payment to transition liability/(surplus)	(51,243)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(10.24%)
B. Actual employer payroll	459,796
C. Payment to transition liability/(surplus)	(47,084)
4. Supplemental payment to transition liability	0
5. Interest	(58,928)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($877,375)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(877,375)	(916,774)
2. Combined valuation payroll	924,042	916,483
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(12.48%)**	**(12.03%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	924,042	916,483
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Yamhill/2214
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Yamhill/2214

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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December 2019
City of Yamhill/2214

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yamhill -- #2214

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yamhill to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yamhill.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Yamhill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.24%	12.84%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.29%)	(5.29%)	(5.29%)	(5.29%)	(5.29%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.76%**	**21.36%**	**28.52%**	**18.97%**	**23.34%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.81%**	**21.41%**	**28.57%**	**18.97%**	**23.34%**

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

[1] *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

[3] *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Yamhill

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,003,565	$869,920
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(186,112)	(202,017)
Allocated pooled OPSRP UAL	83,539	68,717
Side account	0	0
Net unfunded pension actuarial accrued liability	900,992	736,620
Combined valuation payroll	462,655	456,012
Net pension UAL as a percentage of payroll	195%	162%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.29%)	(5.33%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,781)	($5,225)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$45,076	$7,740
Tier 2 General Service	12.84%	131,611	16,899	12.64%	124,805	15,775
Total General Service		**131,611**	**16,899**		**169,881**	**23,515**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	118,851	23,770	20.05%	115,873	23,233
Total Police & Fire		**118,851**	**23,770**		**115,873**	**23,233**
Total		**$250,462**	**$40,669**		**$285,754**	**$46,748**
Total normal cost rate						
General Service			**12.84%**			**13.84%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**16.24%**			**16.36%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($202,017)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	236,047
C. Payment to transition liability/(surplus)	(13,809)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	249,508
C. Payment to transition liability/(surplus)	(14,596)
4. Supplemental payment to transition liability	0
5. Interest	(12,500)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($186,112)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(186,112)	(202,017)
2. Combined valuation payroll	462,655	456,012
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.29%)**	**(5.33%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	462,655	456,012
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Brookings/2216
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Brookings/2216

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Brookings -- #2216

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Brookings to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Brookings.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Brookings

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.69%	12.84%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(1.25%)	(1.25%)	(1.25%)	(1.25%)	(1.25%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.69%**	**23.84%**	**31.00%**	**21.45%**	**25.82%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.74%**	**23.89%**	**31.05%**	**21.45%**	**25.82%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Brookings

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$4,600,120	$4,987,548
Allocated pre-SLGRP pooled liability/(surplus)	(251,880)	(365,046)
Transition liability/(surplus)	(202,088)	(209,306)
Allocated pooled OPSRP UAL	382,923	393,977
Side account	0	0
Net unfunded pension actuarial accrued liability	4,529,075	4,807,173
Combined valuation payroll	2,120,708	2,614,469
Net pension UAL as a percentage of payroll	214%	184%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(1.25%)	(0.96%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($31,085)	($29,957)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$65,574	$11,259
Tier 2 General Service	12.84%	199,477	25,613	12.64%	304,446	38,482
Total General Service		**199,477**	**25,613**		**370,020**	**49,741**
Tier 1 Police & Fire	22.20%	0	0	22.26%	118,354	26,346
Tier 2 Police & Fire	20.00%	232,268	46,454	20.05%	219,007	43,911
Total Police & Fire		**232,268**	**46,454**		**337,361**	**70,257**
Total		**$431,745**	**$72,067**		**$707,381**	**$119,998**
Total normal cost rate						
General Service			**12.84%**			**13.44%**
Police & Fire			**20.00%**			**20.83%**
Aggregate (Default)			**16.69%**			**16.96%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($209,306)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.81%)
B. Actual employer payroll	1,303,108
C. Payment to transition liability/(surplus)	(10,555)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.81%)
B. Actual employer payroll	1,263,641
C. Payment to transition liability/(surplus)	(10,236)
4. Supplemental payment to transition liability	0
5. Interest	(13,573)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($202,088)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(202,088)	(209,306)
2. Combined valuation payroll	2,120,708	2,614,469
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.25%)**	**(0.96%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,120,708	2,614,469
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Sutherlin/2217
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Sutherlin/2217

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Sutherlin/2217

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sutherlin -- #2217

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sutherlin to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sutherlin.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Sutherlin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.06%	14.24%	21.23%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(6.57%)	(6.57%)	(6.57%)	(6.57%)	(6.57%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**21.74%**	**19.92%**	**26.91%**	**16.13%**	**20.50%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.79%**	**19.97%**	**26.96%**	**16.13%**	**20.50%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Sutherlin

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$6,073,924	$4,652,753
Allocated pre-SLGRP pooled liability/(surplus)	(332,578)	(340,542)
Transition liability/(surplus)	(1,399,004)	(1,550,435)
Allocated pooled OPSRP UAL	505,606	367,531
Side account	0	0
Net unfunded pension actuarial accrued liability	4,847,948	3,129,307
Combined valuation payroll	2,800,148	2,438,970
Net pension UAL as a percentage of payroll	173%	128%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(6.57%)	(7.65%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($41,044)	($27,946)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$174,811	$29,735	17.17%	$240,793	$41,344
Tier 2 General Service	12.84%	346,524	44,494	12.64%	375,205	47,426
Total General Service		**521,335**	**74,229**		**615,998**	**88,770**
Tier 1 Police & Fire	22.20%	102,565	22,769	22.26%	76,131	16,947
Tier 2 Police & Fire	20.00%	81,259	16,252	20.05%	77,171	15,473
Total Police & Fire		**183,824**	**39,021**		**153,302**	**32,420**
Total		**$705,159**	**$113,250**		**$769,300**	**$121,190**
Total normal cost rate						
General Service			**14.24%**			**14.41%**
Police & Fire			**21.23%**			**21.15%**
Aggregate (Default)			**16.06%**			**15.75%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,550,435)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(9.10%)
B. Actual employer payroll	1,260,587
C. Payment to transition liability/(surplus)	(114,713)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(9.10%)
B. Actual employer payroll	1,436,057
C. Payment to transition liability/(surplus)	(130,681)
4. Supplemental payment to transition liability	0
5. Interest	(93,963)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,399,004)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,399,004)	(1,550,435)
2. Combined valuation payroll	2,800,148	2,438,970
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.57%)**	**(7.65%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,800,148	2,438,970
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Garibaldi/2220
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Garibaldi/2220

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Garibaldi -- #2220

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Garibaldi to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Garibaldi.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Garibaldi

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.72%	14.72%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	1.07%	1.07%	1.07%	1.07%	1.07%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**29.60%**	**29.60%**	**35.59%**	**25.33%**	**29.70%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.65%**	**29.65%**	**35.64%**	**25.33%**	**29.70%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Garibaldi

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,086,995	$784,867
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	40,800	43,832
Allocated pooled OPSRP UAL	90,484	61,998
Side account	0	0
Net unfunded pension actuarial accrued liability	1,218,279	890,697
Combined valuation payroll	501,117	411,427
Net pension UAL as a percentage of payroll	243%	216%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	1.07%	1.28%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,345)	($4,714)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$76,257	$12,971	17.17%	$77,632	$13,329
Tier 2 General Service	12.84%	92,583	11,888	12.64%	89,230	11,279
Total General Service		**168,840**	**24,859**		**166,862**	**24,608**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$168,840**	**$24,859**		**$166,862**	**$24,608**
Total normal cost rate						
General Service			**14.72%**			**14.75%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.72%**			**14.75%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$43,832
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	1.25%
B. Actual employer payroll	232,610
C. Payment to transition liability/(surplus)	2,908
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	1.25%
B. Actual employer payroll	229,213
C. Payment to transition liability/(surplus)	2,864
4. Supplemental payment to transition liability	0
5. Interest	2,740
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$40,800**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	40,800	43,832
2. Combined valuation payroll	501,117	411,427
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.07%**	**1.28%**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	501,117	411,427
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Sisters/2221
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Sisters/2221

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Sisters/2221

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sisters -- #2221

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sisters to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sisters.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Sisters

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(4.26%)	(4.26%)	(4.26%)	(4.26%)	(4.26%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**20.83%**	**20.83%**	**28.70%**	**18.44%**	**22.81%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.88%**	**20.88%**	**28.75%**	**18.44%**	**22.81%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Sisters

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$1,964,483	$1,778,246
Allocated pre-SLGRP pooled liability/(surplus)	(107,565)	(130,152)
Transition liability/(surplus)	(293,666)	(312,100)
Allocated pooled OPSRP UAL	163,527	140,468
Side account	0	0
Net unfunded pension actuarial accrued liability	1,726,779	1,476,462
Combined valuation payroll	905,649	932,155
Net pension UAL as a percentage of payroll	191%	158%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(4.26%)	(4.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13,275)	($10,681)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	155,521	19,969	12.64%	142,187	17,972
Total General Service		**155,521**	**19,969**		**142,187**	**17,972**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$155,521**	**$19,969**		**$142,187**	**$17,972**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($312,100)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(4.05%)
B. Actual employer payroll	480,864
C. Payment to transition liability/(surplus)	(19,475)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(4.05%)
B. Actual employer payroll	461,307
C. Payment to transition liability/(surplus)	(18,683)
4. Supplemental payment to transition liability	0
5. Interest	(19,724)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($293,666)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(293,666)	(312,100)
2. Combined valuation payroll	905,649	932,155
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.26%)**	**(4.03%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	905,649	932,155
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Cannon Beach/2223
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Cannon Beach/2223

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cannon Beach -- #2223

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cannon Beach to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cannon Beach.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Cannon Beach

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.32%	13.71%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(1.99%)	(1.99%)	(1.99%)	(1.99%)	(1.99%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.58%**	**23.97%**	**30.26%**	**20.71%**	**25.08%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.63%**	**24.02%**	**30.31%**	**20.71%**	**25.08%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Cannon Beach

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$5,008,640	$4,040,082
Allocated pre-SLGRP pooled liability/(surplus)	(274,248)	(295,700)
Transition liability/(surplus)	(348,895)	(378,144)
Allocated pooled OPSRP UAL	416,929	319,135
Side account	0	0
Net unfunded pension actuarial accrued liability	4,802,426	3,685,373
Combined valuation payroll	2,309,040	2,117,808
Net pension UAL as a percentage of payroll	208%	174%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(1.99%)	(2.15%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($33,845)	($24,266)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$132,554	$22,547	17.17%	$179,495	$30,819
Tier 2 General Service	12.84%	503,961	64,709	12.64%	495,398	62,618
Total General Service		**636,515**	**87,256**		**674,893**	**93,437**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	220,003	44,001	20.05%	173,153	34,717
Total Police & Fire		**220,003**	**44,001**		**173,153**	**34,717**
Total		**$856,518**	**$131,257**		**$848,046**	**$128,154**
Total normal cost rate						
General Service			**13.71%**			**13.84%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**15.32%**			**15.11%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($378,144)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(2.29%)
B. Actual employer payroll	1,091,891
C. Payment to transition liability/(surplus)	(25,004)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(2.29%)
B. Actual employer payroll	1,208,612
C. Payment to transition liability/(surplus)	(27,678)
4. Supplemental payment to transition liability	0
5. Interest	(23,433)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($348,895)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(348,895)	(378,144)
2. Combined valuation payroll	2,309,040	2,117,808
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.99%)**	**(2.15%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,309,040	2,117,808
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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December 2019

City of Falls City/2224
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

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

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

December 2019
City of Falls City/2224

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Falls City/2224

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Falls City -- #2224

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Falls City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Falls City.

Executive Summary

Employer Contribution Rates

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

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Falls City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.25%)	(4.25%)	(4.25%)	(4.25%)	(4.25%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.57%**	**26.57%**	**30.27%**	**20.01%**	**24.38%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.62%**	**26.62%**	**30.32%**	**20.01%**	**24.38%**

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

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

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

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

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

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

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

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

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

Executive Summary

Accounting Information

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

Pension

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

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

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

City of Falls City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$446,257	$314,520
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(66,435)	(71,212)
Allocated pooled OPSRP UAL	37,147	24,845
Side account	0	0
Net unfunded pension actuarial accrued liability	416,969	268,153
Combined valuation payroll	205,730	164,871
Net pension UAL as a percentage of payroll	203%	163%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.25%)	(5.20%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,016)	($1,889)
Allocated pooled RHIPA UAL	$0	$0

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

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

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

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

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

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

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

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$51,646	$8,785	17.17%	$53,608	$9,204
Tier 2 General Service	12.84%	0	0	12.64%	40,739	5,149
Total General Service		**51,646**	**8,785**		**94,347**	**14,353**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$51,646**	**$8,785**		**$94,347**	**$14,353**
Total normal cost rate						
General Service			**17.01%**			**15.21%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**15.21%**

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

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

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

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($71,212)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(5.56%)
B. Actual employer payroll	67,758
C. Payment to transition liability/(surplus)	(3,767)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(5.56%)
B. Actual employer payroll	98,407
C. Payment to transition liability/(surplus)	(5,472)
4. Supplemental payment to transition liability	0
5. Interest	(4,462)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($66,435)**

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

Development of Transition Liability or Surplus Rate

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

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(66,435)	(71,212)
2. Combined valuation payroll	205,730	164,871
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.25%)**	**(5.20%)**

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	205,730	164,871
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

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

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

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

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

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Echo/2225
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Echo/2225

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Echo -- #2225

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Echo to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Echo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Echo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.58%	16.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	7.29%	7.29%	7.29%	7.29%	7.29%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**36.12%**	**36.12%**	**40.25%**	**29.99%**	**34.36%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**36.17%**	**36.17%**	**40.30%**	**29.99%**	**34.36%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Echo

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$410,244	$427,273
Allocated pre-SLGRP pooled liability/(surplus)	(22,463)	(31,273)
Transition liability/(surplus)	104,850	111,176
Allocated pooled OPSRP UAL	34,150	33,751
Side account	0	0
Net unfunded pension actuarial accrued liability	526,781	540,927
Combined valuation payroll	189,127	223,976
Net pension UAL as a percentage of payroll	279%	242%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	7.29%	5.97%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,772)	($2,566)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$141,245	$24,026	17.17%	$134,731	$23,133
Tier 2 General Service	12.84%	16,081	2,065	12.64%	16,318	2,063
Total General Service		**157,326**	**26,091**		**151,049**	**25,196**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$157,326**	**$26,091**		**$151,049**	**$25,196**
Total normal cost rate						
General Service			**16.58%**			**16.68%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**16.58%**			**16.68%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$111,176
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	6.15%
B. Actual employer payroll	104,440
C. Payment to transition liability/(surplus)	6,423
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	6.15%
B. Actual employer payroll	112,936
C. Payment to transition liability/(surplus)	6,945
4. Supplemental payment to transition liability	0
5. Interest	7,042
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$104,850**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	104,850	111,176
2. Combined valuation payroll	189,127	223,976
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**7.29%**	**5.97%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	189,127	223,976
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Hines/2226
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Hines/2226

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hines -- #2226

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hines to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hines.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Hines

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(1.01%)	(1.01%)	(1.01%)	(1.01%)	(1.01%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.02%**	**25.82%**	**31.95%**	**21.69%**	**26.06%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.07%**	**25.87%**	**32.00%**	**21.69%**	**26.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hines

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$889,888	$759,868
Allocated pre-SLGRP pooled liability/(surplus)	(48,726)	(55,616)
Transition liability/(surplus)	(31,546)	(34,470)
Allocated pooled OPSRP UAL	74,076	60,024
Side account	0	0
Net unfunded pension actuarial accrued liability	883,692	729,806
Combined valuation payroll	410,248	398,322
Net pension UAL as a percentage of payroll	215%	183%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(1.01%)	(1.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,013)	($4,564)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($34,470)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(1.32%)
B. Actual employer payroll	195,277
C. Payment to transition liability/(surplus)	(2,578)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(1.32%)
B. Actual employer payroll	186,762
C. Payment to transition liability/(surplus)	(2,465)
4. Supplemental payment to transition liability	0
5. Interest	(2,119)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($31,546)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(31,546)	(34,470)
2. Combined valuation payroll	410,248	398,322
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.01%)**	**(1.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	410,248	398,322
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Turner/2228
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Turner/2228

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Turner -- #2228

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Turner to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Turner.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Turner

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.74%	12.84%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.50%)	(0.50%)	(0.50%)	(0.50%)	(0.50%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**28.05%**	**26.15%**	**33.31%**	**23.76%**	**28.13%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.10%**	**26.20%**	**33.36%**	**23.76%**	**28.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Turner

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,098,445	$915,117
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(19,113)	(21,434)
Allocated pooled OPSRP UAL	91,437	72,287
Side account	0	0
Net unfunded pension actuarial accrued liability	1,170,769	965,970
Combined valuation payroll	506,395	479,704
Net pension UAL as a percentage of payroll	231%	201%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.50%)	(0.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,423)	($5,497)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	210,870	27,076	12.64%	203,357	25,704
Total General Service		**210,870**	**27,076**		**203,357**	**25,704**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	76,383	15,277	20.05%	73,382	14,713
Total Police & Fire		**76,383**	**15,277**		**73,382**	**14,713**
Total		**$287,253**	**$42,353**		**$276,739**	**$40,417**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**14.74%**			**14.60%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($21,434)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.76%)
B. Actual employer payroll	222,922
C. Payment to transition liability/(surplus)	(1,694)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.76%)
B. Actual employer payroll	251,316
C. Payment to transition liability/(surplus)	(1,911)
4. Supplemental payment to transition liability	0
5. Interest	(1,284)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($19,113)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(19,113)	(21,434)
2. Combined valuation payroll	506,395	479,704
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.50%)**	**(0.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	506,395	479,704
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of John Day/2229
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of John Day/2229

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of John Day -- #2229

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of John Day to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of John Day.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of John Day

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(13.00%)	(13.00%)	(13.00%)	(13.00%)	(13.00%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**13.65%**	**13.65%**	**21.52%**	**11.26%**	**15.63%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**13.70%**	**13.70%**	**21.57%**	**11.26%**	**15.63%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of John Day

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,469,761	$1,477,382
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(669,962)	(715,846)
Allocated pooled OPSRP UAL	122,346	116,702
Side account	0	0
Net unfunded pension actuarial accrued liability	922,145	878,238
Combined valuation payroll	677,577	774,442
Net pension UAL as a percentage of payroll	136%	113%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(13.00%)	(11.12%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,932)	($8,874)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	126,003	16,179	12.64%	130,274	16,467
Total General Service		**126,003**	**16,179**		**130,274**	**16,467**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	125,348	25,132
Total Police & Fire		**0**	**0**		**125,348**	**25,132**
Total		**$126,003**	**$16,179**		**$255,622**	**$41,599**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.05%**
Aggregate (Default)			**12.84%**			**16.27%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($715,846)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(10.44%)
B. Actual employer payroll	416,116
C. Payment to transition liability/(surplus)	(43,443)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(10.44%)
B. Actual employer payroll	454,391
C. Payment to transition liability/(surplus)	(47,438)
4. Supplemental payment to transition liability	0
5. Interest	(44,997)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($669,962)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(669,962)	(715,846)
2. Combined valuation payroll	677,577	774,442
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(13.00%)**	**(11.12%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	677,577	774,442
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Banks/2231
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Banks/2231

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Banks/2231

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman’s prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman’s consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Banks -- #2231

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Banks to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Banks.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Banks

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.78%)	(8.78%)	(8.78%)	(8.78%)	(8.78%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**20.81%**	**19.61%**	**25.74%**	**15.48%**	**19.85%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.86%**	**19.66%**	**25.79%**	**15.48%**	**19.85%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Banks

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$820,040	$612,544
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(252,391)	(278,421)
Allocated pooled OPSRP UAL	68,262	48,386
Side account	0	0
Net unfunded pension actuarial accrued liability	635,911	382,509
Combined valuation payroll	378,048	321,095
Net pension UAL as a percentage of payroll	168%	119%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.78%)	(10.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,541)	($3,679)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	28,252	3,571
Total General Service		**0**	**0**		**28,252**	**3,571**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$28,252**	**$3,571**
Total normal cost rate						
General Service			**14.58%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($278,421)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(10.49%)
B. Actual employer payroll	202,802
C. Payment to transition liability/(surplus)	(21,274)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(10.49%)
B. Actual employer payroll	206,948
C. Payment to transition liability/(surplus)	(21,708)
4. Supplemental payment to transition liability	0
5. Interest	(16,952)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($252,391)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(252,391)	(278,421)
2. Combined valuation payroll	378,048	321,095
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(8.78%)**	**(10.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	378,048	321,095
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Lafayette/2233
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Lafayette/2233

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lafayette -- #2233

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lafayette to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lafayette.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Lafayette

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.42%	14.42%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.16%)	(4.16%)	(4.16%)	(4.16%)	(4.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.07%**	**24.07%**	**30.36%**	**20.10%**	**24.47%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.12%**	**24.12%**	**30.41%**	**20.10%**	**24.47%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lafayette

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,266,766	$790,729
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(184,904)	(191,920)
Allocated pooled OPSRP UAL	105,448	62,461
Side account	0	0
Net unfunded pension actuarial accrued liability	1,187,310	661,270
Combined valuation payroll	583,993	414,499
Net pension UAL as a percentage of payroll	203%	160%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.16%)	(5.57%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,560)	($4,749)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$101,732	$17,305	17.17%	$98,688	$16,945
Tier 2 General Service	12.84%	166,243	21,346	12.64%	151,151	19,105
Total General Service		**267,975**	**38,651**		**249,839**	**36,050**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$267,975**	**$38,651**		**$249,839**	**$36,050**
Total normal cost rate						
General Service			**14.42%**			**14.43%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.42%**			**14.43%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($191,920)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	206,299
C. Payment to transition liability/(surplus)	(8,830)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	247,787
C. Payment to transition liability/(surplus)	(10,605)
4. Supplemental payment to transition liability	0
5. Interest	(12,419)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($184,904)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(184,904)	(191,920)
2. Combined valuation payroll	583,993	414,499
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.16%)**	**(5.57%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	583,993	414,499
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Aumsville/2234
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Aumsville/2234

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aumsville -- #2234

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aumsville to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aumsville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Aumsville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.75%	14.74%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(4.03%)	(4.03%)	(4.03%)	(4.03%)	(4.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**23.97%**	**22.96%**	**28.22%**	**18.67%**	**23.04%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.02%**	**23.01%**	**28.27%**	**18.67%**	**23.04%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aumsville

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,202,980	$1,885,615
Allocated pre-SLGRP pooled liability/(surplus)	(120,624)	(138,011)
Transition liability/(surplus)	(311,129)	(340,834)
Allocated pooled OPSRP UAL	183,381	148,949
Side account	0	0
Net unfunded pension actuarial accrued liability	1,954,608	1,555,719
Combined valuation payroll	1,015,599	988,438
Net pension UAL as a percentage of payroll	192%	157%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(4.03%)	(4.15%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14,886)	($11,326)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$145,389	$24,731	17.17%	$139,809	$24,005
Tier 2 General Service	12.84%	174,513	22,407	12.64%	171,816	21,718
Total General Service		**319,902**	**47,138**		**311,625**	**45,723**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	75,968	15,194	20.05%	76,165	15,271
Total Police & Fire		**75,968**	**15,194**		**76,165**	**15,271**
Total		**$395,870**	**$62,332**		**$387,790**	**$60,994**
Total normal cost rate						
General Service			**14.74%**			**14.67%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**15.75%**			**15.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($340,834)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(5.07%)
B. Actual employer payroll	476,912
C. Payment to transition liability/(surplus)	(24,179)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(5.07%)
B. Actual employer payroll	521,158
C. Payment to transition liability/(surplus)	(26,423)
4. Supplemental payment to transition liability	0
5. Interest	(20,897)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($311,129)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(311,129)	(340,834)
2. Combined valuation payroll	1,015,599	988,438
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.03%)**	**(4.15%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,015,599	988,438
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Amity/2235
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Amity/2235

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Amity -- #2235

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Amity to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Amity.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Amity

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(14.14%)	(14.14%)	(14.14%)	(14.14%)	(14.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**16.68%**	**16.68%**	**20.38%**	**10.12%**	**14.49%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**16.73%**	**16.73%**	**20.43%**	**10.12%**	**14.49%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Amity

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$499,252	$483,775
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(247,501)	(268,429)
Allocated pooled OPSRP UAL	41,559	38,214
Side account	0	0
Net unfunded pension actuarial accrued liability	293,310	253,560
Combined valuation payroll	230,161	253,594
Net pension UAL as a percentage of payroll	127%	100%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(14.14%)	(12.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,374)	($2,906)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$34,734	$5,908	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**34,734**	**5,908**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$34,734**	**$5,908**		**$0**	**$0**
Total normal cost rate						
General Service			**17.01%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($268,429)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(11.73%)
B. Actual employer payroll	159,375
C. Payment to transition liability/(surplus)	(18,695)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(11.73%)
B. Actual employer payroll	160,757
C. Payment to transition liability/(surplus)	(18,856)
4. Supplemental payment to transition liability	0
5. Interest	(16,623)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($247,501)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(247,501)	(268,429)
2. Combined valuation payroll	230,161	253,594
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(14.14%)**	**(12.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	230,161	253,594
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Creswell/2236
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Creswell/2236

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Creswell/2236

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Creswell -- #2236

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Creswell to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Creswell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Creswell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.48%	13.48%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.63%)	(1.63%)	(1.63%)	(1.63%)	(1.63%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.66%**	**25.66%**	**32.89%**	**22.63%**	**27.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.71%**	**25.71%**	**32.94%**	**22.63%**	**27.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Creswell

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,105,553	$1,822,531
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(120,549)	(137,345)
Allocated pooled OPSRP UAL	175,270	143,966
Side account	0	0
Net unfunded pension actuarial accrued liability	2,160,274	1,829,152
Combined valuation payroll	970,684	955,370
Net pension UAL as a percentage of payroll	223%	191%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.63%)	(1.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14,228)	($10,947)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$60,548	$10,299	17.17%	$59,334	$10,188
Tier 2 General Service	12.84%	332,806	42,732	12.64%	315,331	39,858
Total General Service		**393,354**	**53,031**		**374,665**	**50,046**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$393,354**	**$53,031**		**$374,665**	**$50,046**
Total normal cost rate						
General Service			**13.48%**			**13.36%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**13.48%**			**13.36%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($137,345)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.50%)
B. Actual employer payroll	489,441
C. Payment to transition liability/(surplus)	(12,236)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.50%)
B. Actual employer payroll	506,263
C. Payment to transition liability/(surplus)	(12,657)
4. Supplemental payment to transition liability	0
5. Interest	(8,097)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($120,549)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(120,549)	(137,345)
2. Combined valuation payroll	970,684	955,370
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.63%)**	**(1.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	970,684	955,370
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Troutdale/2237
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Troutdale/2237

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Troutdale -- #2237

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Troutdale to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Troutdale.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Troutdale

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.85%	13.85%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.64%	14.64%	14.64%	14.64%	14.64%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.16%)	(12.16%)	(12.16%)	(12.16%)	(12.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**15.64%**	**15.64%**	**22.50%**	**12.24%**	**16.61%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.69%**	**15.69%**	**22.55%**	**12.24%**	**16.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Troutdale

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$6,187,102	$5,508,468
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,637,109)	(2,816,458)
Allocated pooled OPSRP UAL	515,027	435,126
Side account	0	0
Net unfunded pension actuarial accrued liability	4,065,020	3,127,136
Combined valuation payroll	2,852,324	2,887,535
Net pension UAL as a percentage of payroll	143%	108%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.16%)	(11.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($41,809)	($33,086)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			**December 31, 2017**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$266,712	$45,368	17.17%	$538,198	$92,409
Tier 2 General Service	12.84%	838,341	107,643	12.64%	849,394	107,363
Total General Service		**1,105,053**	**153,011**		**1,387,592**	**199,772**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,105,053**	**$153,011**		**$1,387,592**	**$199,772**
Total normal cost rate						
General Service			**13.85%**			**14.40%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**13.85%**			**14.40%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($2,816,458)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(11.51%)
B. Actual employer payroll	1,542,778
C. Payment to transition liability/(surplus)	(177,574)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(11.51%)
B. Actual employer payroll	1,554,249
C. Payment to transition liability/(surplus)	(178,894)
4. Supplemental payment to transition liability	0
5. Interest	(177,119)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,637,109)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(2,637,109)	(2,816,458)
2. Combined valuation payroll	2,852,324	2,887,535
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(12.16%)**	**(11.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,852,324	2,887,535
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Warrenton/2238
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Warrenton/2238

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Warrenton -- #2238

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Warrenton to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Warrenton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Warrenton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.25%	15.28%	20.51%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.10%)	(2.10%)	(2.10%)	(2.10%)	(2.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**28.96%**	**26.99%**	**32.22%**	**22.16%**	**26.53%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.01%**	**27.04%**	**32.27%**	**22.16%**	**26.53%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Warrenton

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$6,723,238	$4,712,479
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(494,356)	(531,765)
Allocated pooled OPSRP UAL	559,656	372,249
Side account	0	0
Net unfunded pension actuarial accrued liability	6,788,538	4,552,963
Combined valuation payroll	3,099,489	2,470,278
Net pension UAL as a percentage of payroll	219%	184%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.10%)	(2.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($45,432)	($28,305)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$375,845	$63,931	17.17%	$354,283	$60,830
Tier 2 General Service	12.84%	266,865	34,265	12.64%	208,728	26,383
Total General Service		**642,710**	**98,196**		**563,011**	**87,213**
Tier 1 Police & Fire	22.20%	90,500	20,091	22.26%	87,161	19,402
Tier 2 Police & Fire	20.00%	297,533	59,507	20.05%	290,133	58,172
Total Police & Fire		**388,033**	**79,598**		**377,294**	**77,574**
Total		**$1,030,743**	**$177,794**		**$940,305**	**$164,787**
Total normal cost rate						
General Service			**15.28%**			**15.49%**
Police & Fire			**20.51%**			**20.56%**
Aggregate (Default)			**17.25%**			**17.52%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($531,765)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(2.33%)
B. Actual employer payroll	1,454,480
C. Payment to transition liability/(surplus)	(33,889)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(2.33%)
B. Actual employer payroll	1,576,120
C. Payment to transition liability/(surplus)	(36,723)
4. Supplemental payment to transition liability	0
5. Interest	(33,203)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($494,356)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(494,356)	(531,765)
2. Combined valuation payroll	3,099,489	2,470,278
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.10%)**	**(2.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,099,489	2,470,278
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Wilsonville/2240
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Wilsonville/2240

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Wilsonville/2240

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wilsonville -- #2240

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wilsonville to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wilsonville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Wilsonville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.86%	14.86%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.55%)	(0.55%)	(0.55%)	(0.55%)	(0.55%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.56%**	**26.56%**	**32.41%**	**22.15%**	**26.52%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.61%**	**26.61%**	**32.46%**	**22.15%**	**26.52%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wilsonville

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$22,155,567	$17,481,114
Allocated pre-SLGRP pooled liability/(surplus)	(1,213,129)	(1,279,469)
Transition liability/(surplus)	(423,665)	(450,851)
Allocated pooled OPSRP UAL	1,844,274	1,380,871
Side account	0	0
Net unfunded pension actuarial accrued liability	22,363,047	17,131,665
Combined valuation payroll	10,213,967	9,163,588
Net pension UAL as a percentage of payroll	219%	187%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.55%)	(0.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($149,714)	($104,998)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$1,830,934	$311,442	17.17%	$1,733,146	$297,581
Tier 2 General Service	12.84%	1,952,961	250,760	12.64%	1,954,095	246,998
Total General Service		**3,783,895**	**562,202**		**3,687,241**	**544,579**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$3,783,895**	**$562,202**		**$3,687,241**	**$544,579**
Total normal cost rate						
General Service			**14.86%**			**14.77%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.86%**			**14.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($450,851)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.56%)
B. Actual employer payroll	4,860,725
C. Payment to transition liability/(surplus)	(27,220)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.56%)
B. Actual employer payroll	5,075,183
C. Payment to transition liability/(surplus)	(28,421)
4. Supplemental payment to transition liability	0
5. Interest	(28,455)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($423,665)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(423,665)	(450,851)
2. Combined valuation payroll	10,213,967	9,163,588
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.55%)**	**(0.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	10,213,967	9,163,588
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Bay City/2241
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Bay City/2241

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Bay City -- #2241

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Bay City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Bay City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Bay City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(2.67%)	(2.67%)	(2.67%)	(2.67%)	(2.67%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**22.42%**	**22.42%**	**30.29%**	**20.03%**	**24.40%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.47%**	**22.47%**	**30.34%**	**20.03%**	**24.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Bay City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,042,174	$700,813
Allocated pre-SLGRP pooled liability/(surplus)	(57,064)	(51,294)
Transition liability/(surplus)	(97,450)	(106,781)
Allocated pooled OPSRP UAL	86,753	55,359
Side account	0	0
Net unfunded pension actuarial accrued liability	974,413	598,097
Combined valuation payroll	480,454	367,366
Net pension UAL as a percentage of payroll	203%	163%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(2.67%)	(3.50%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,042)	($4,209)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	75,082	9,641	12.64%	70,221	8,876
Total General Service		**75,082**	**9,641**		**70,221**	**8,876**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$75,082**	**$9,641**		**$70,221**	**$8,876**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($106,781)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.81%)
B. Actual employer payroll	195,947
C. Payment to transition liability/(surplus)	(7,466)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.81%)
B. Actual employer payroll	220,754
C. Payment to transition liability/(surplus)	(8,410)
4. Supplemental payment to transition liability	0
5. Interest	(6,545)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($97,450)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(97,450)	(106,781)
2. Combined valuation payroll	480,454	367,366
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.67%)**	**(3.50%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	480,454	367,366
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Gaston/2242
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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December 2019
City of Gaston/2242

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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December 2019
City of Gaston/2242

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gaston -- #2242

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gaston to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gaston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Gaston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(44.88%)	(44.88%)	(44.88%)	(44.88%)	(44.88%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gaston

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$280,983	$191,455
Allocated pre-SLGRP pooled liability/(surplus)	(15,385)	(14,013)
Transition liability/(surplus)	(442,219)	(429,057)
Allocated pooled OPSRP UAL	23,390	15,123
Side account	0	0
Net unfunded pension actuarial accrued liability	(153,231)	(236,492)
Combined valuation payroll	129,537	100,361
Net pension UAL as a percentage of payroll	(118%)	(236%)
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(44.88%)	(51.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,899)	($1,150)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($429,057)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(23.12%)
B. Actual employer payroll	60,800
C. Payment to transition liability/(surplus)	(8,263)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(23.12%)
B. Actual employer payroll	60,897
C. Payment to transition liability/(surplus)	(8,276)
4. Supplemental payment to transition liability	0
5. Interest	(29,701)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($442,219)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(442,219)	(429,057)
2. Combined valuation payroll	129,537	100,361
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(44.88%)**	**(51.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	129,537	100,361
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Lakeside/2244
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Lakeside/2244

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Lakeside/2244

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lakeside -- #2244

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lakeside to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lakeside.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Lakeside

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(17.28%)	(17.28%)	(17.28%)	(17.28%)	(17.28%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**7.81%**	**7.81%**	**15.68%**	**5.42%**	**9.79%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**7.86%**	**7.86%**	**15.73%**	**5.42%**	**9.79%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lakeside

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$460,935	$463,027
Allocated pre-SLGRP pooled liability/(surplus)	(25,239)	(33,890)
Transition liability/(surplus)	(279,211)	(282,113)
Allocated pooled OPSRP UAL	38,369	36,576
Side account	0	0
Net unfunded pension actuarial accrued liability	194,854	183,600
Combined valuation payroll	212,496	242,719
Net pension UAL as a percentage of payroll	92%	76%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(17.28%)	(13.98%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,115)	($2,781)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	44,355	5,695	12.64%	32,104	4,058
Total General Service		**44,355**	**5,695**		**32,104**	**4,058**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$44,355**	**$5,695**		**$32,104**	**$4,058**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($282,113)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(8.22%)
B. Actual employer payroll	150,289
C. Payment to transition liability/(surplus)	(12,354)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(8.22%)
B. Actual employer payroll	113,157
C. Payment to transition liability/(surplus)	(9,301)
4. Supplemental payment to transition liability	0
5. Interest	(18,753)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($279,211)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(279,211)	(282,113)
2. Combined valuation payroll	212,496	242,719
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(17.28%)**	**(13.98%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	212,496	242,719
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Dundee/2245
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Dundee/2245

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Dundee/2245

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dundee -- #2245

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dundee to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dundee.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Dundee

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.67%	13.82%	22.20%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.91%)	(2.91%)	(2.91%)	(2.91%)	(2.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset[3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.57%**	**24.72%**	**33.10%**	**21.35%**	**25.72%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.62%**	**24.77%**	**33.15%**	**21.35%**	**25.72%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dundee

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$1,393,938	$1,159,922
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(142,452)	(153,032)
Allocated pooled OPSRP UAL	116,034	91,625
Side account	0	0
Net unfunded pension actuarial accrued liability	1,367,520	1,098,515
Combined valuation payroll	642,621	608,030
Net pension UAL as a percentage of payroll	213%	181%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.91%)	(3.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,419)	($6,967)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$60,272	$10,252	17.17%	$118,580	$20,360
Tier 2 General Service	12.84%	196,080	25,177	12.64%	183,683	23,218
Total General Service		**256,352**	**35,429**		**302,263**	**43,578**
Tier 1 Police & Fire	22.20%	72,644	16,127	22.26%	69,930	15,566
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**72,644**	**16,127**		**69,930**	**15,566**
Total		**$328,996**	**$51,556**		**$372,193**	**$59,144**
Total normal cost rate						
General Service			**13.82%**			**14.42%**
Police & Fire			**22.20%**			**22.26%**
Aggregate (Default)			**15.67%**			**15.89%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($153,032)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.07%)
B. Actual employer payroll	334,111
C. Payment to transition liability/(surplus)	(10,257)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.07%)
B. Actual employer payroll	322,174
C. Payment to transition liability/(surplus)	(9,891)
4. Supplemental payment to transition liability	0
5. Interest	(9,568)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($142,452)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(142,452)	(153,032)
2. Combined valuation payroll	642,621	608,030
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.91%)**	**(3.03%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	642,621	608,030
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Malin/2247
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Malin/2247

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No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Malin -- #2247

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Malin to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Malin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Malin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.29%	13.29%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(5.91%)	(5.91%)	(5.91%)	(5.91%)	(5.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**19.63%**	**19.63%**	**27.05%**	**16.79%**	**21.16%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.68%**	**19.68%**	**27.10%**	**16.79%**	**21.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Malin

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$151,267	$210,044
Allocated pre-SLGRP pooled liability/(surplus)	(8,283)	(15,373)
Transition liability/(surplus)	(31,341)	(33,144)
Allocated pooled OPSRP UAL	12,592	16,592
Side account	0	0
Net unfunded pension actuarial accrued liability	124,235	178,119
Combined valuation payroll	69,736	110,105
Net pension UAL as a percentage of payroll	178%	162%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(5.91%)	(3.62%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,022)	($1,262)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$6,886	$1,171	17.17%	$50,110	$8,604
Tier 2 General Service	12.84%	57,251	7,351	12.64%	54,399	6,876
Total General Service		**64,137**	**8,522**		**104,509**	**15,480**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$64,137**	**$8,522**		**$104,509**	**$15,480**
Total normal cost rate						
General Service			**13.29%**			**14.81%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**13.29%**			**14.81%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($33,144)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.56%)
B. Actual employer payroll	54,013
C. Payment to transition liability/(surplus)	(1,923)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.56%)
B. Actual employer payroll	55,778
C. Payment to transition liability/(surplus)	(1,985)
4. Supplemental payment to transition liability	0
5. Interest	(2,105)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($31,341)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(31,341)	(33,144)
2. Combined valuation payroll	69,736	110,105
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.91%)**	**(3.62%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	69,736	110,105
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Phoenix/2249
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Phoenix/2249

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Phoenix -- #2249

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Phoenix to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Phoenix.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Phoenix

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.85%	12.84%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.03%)	(11.03%)	(11.03%)	(11.03%)	(11.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**18.63%**	**15.62%**	**22.78%**	**13.23%**	**17.60%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.68%**	**15.67%**	**22.83%**	**13.23%**	**17.60%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Phoenix

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,648,631	$2,185,472
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,024,457)	(1,086,469)
Allocated pooled OPSRP UAL	220,477	172,635
Side account	0	0
Net unfunded pension actuarial accrued liability	1,844,651	1,271,638
Combined valuation payroll	1,221,049	1,145,623
Net pension UAL as a percentage of payroll	151%	111%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.03%)	(11.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($17,898)	($13,127)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	112,279	14,417	12.64%	159,096	20,110
Total General Service		**112,279**	**14,417**		**159,096**	**20,110**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	81,608	16,322	20.05%	79,544	15,949
Total Police & Fire		**81,608**	**16,322**		**79,544**	**15,949**
Total		**$193,887**	**$30,739**		**$238,640**	**$36,059**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**15.85%**			**15.11%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,086,469)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(10.52%)
B. Actual employer payroll	588,084
C. Payment to transition liability/(surplus)	(61,866)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(10.52%)
B. Actual employer payroll	655,448
C. Payment to transition liability/(surplus)	(68,953)
4. Supplemental payment to transition liability	0
5. Interest	(68,807)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,024,457)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,024,457)	(1,086,469)
2. Combined valuation payroll	1,221,049	1,145,623
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(11.03%)**	**(11.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,221,049	1,145,623
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Rogue River/2251
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Rogue River/2251

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Rogue River/2251

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Rogue River -- #2251

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Rogue River to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Rogue River.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Rogue River

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.24%	16.24%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	3.82%	3.82%	3.82%	3.82%	3.82%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**32.31%**	**32.31%**	**36.78%**	**26.52%**	**30.89%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**32.36%**	**32.36%**	**36.83%**	**26.52%**	**30.89%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Rogue River

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,552,453	$1,331,530
Allocated pre-SLGRP pooled liability/(surplus)	(85,005)	(97,457)
Transition liability/(surplus)	207,761	222,035
Allocated pooled OPSRP UAL	129,229	105,180
Side account	0	0
Net unfunded pension actuarial accrued liability	1,804,438	1,561,288
Combined valuation payroll	715,699	697,987
Net pension UAL as a percentage of payroll	252%	224%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	3.82%	3.83%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($10,491)	($7,998)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$201,493	$34,274	17.17%	$212,455	$36,479
Tier 2 General Service	12.84%	45,671	5,864	12.64%	42,077	5,319
Total General Service		**247,164**	**40,138**		**254,532**	**41,798**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	65,014	13,035
Total Police & Fire		**0**	**0**		**65,014**	**13,035**
Total		**$247,164**	**$40,138**		**$319,546**	**$54,833**
Total normal cost rate						
General Service			**16.24%**			**16.42%**
Police & Fire			**20.71%**			**20.05%**
Aggregate (Default)			**16.24%**			**17.16%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$222,035
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	3.95%
B. Actual employer payroll	366,360
C. Payment to transition liability/(surplus)	14,471
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	3.95%
B. Actual employer payroll	348,270
C. Payment to transition liability/(surplus)	13,757
4. Supplemental payment to transition liability	0
5. Interest	13,954
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$207,761**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	207,761	222,035
2. Combined valuation payroll	715,699	697,987
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**3.82%**	**3.83%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	715,699	697,987
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Dayton/2252
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Dayton/2252

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dayton -- #2252

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dayton to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dayton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Dayton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(5.99%)	(5.99%)	(5.99%)	(5.99%)	(5.99%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**20.69%**	**20.69%**	**26.97%**	**16.71%**	**21.08%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.74%**	**20.74%**	**27.02%**	**16.71%**	**21.08%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dayton

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$974,849	$698,574
Allocated pre-SLGRP pooled liability/(surplus)	(53,378)	(51,130)
Transition liability/(surplus)	(204,829)	(219,268)
Allocated pooled OPSRP UAL	81,148	55,182
Side account	0	0
Net unfunded pension actuarial accrued liability	797,790	483,358
Combined valuation payroll	449,417	366,192
Net pension UAL as a percentage of payroll	178%	132%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(5.99%)	(7.20%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,587)	($4,196)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$50,681	$8,621	17.17%	$96,538	$16,576
Tier 2 General Service	12.84%	81,933	10,520	12.64%	76,403	9,657
Total General Service		**132,614**	**19,141**		**172,941**	**26,233**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$132,614**	**$19,141**		**$172,941**	**$26,233**
Total normal cost rate						
General Service			**14.43%**			**15.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.43%**			**15.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($219,268)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(7.12%)
B. Actual employer payroll	202,940
C. Payment to transition liability/(surplus)	(14,449)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(7.12%)
B. Actual employer payroll	193,064
C. Payment to transition liability/(surplus)	(13,747)
4. Supplemental payment to transition liability	0
5. Interest	(13,757)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($204,829)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(204,829)	(219,268)
2. Combined valuation payroll	449,417	366,192
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.99%)**	**(7.20%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	449,417	366,192
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Shady Cove/2254
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Shady Cove/2254

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Shady Cove/2254

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Shady Cove -- #2254

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Shady Cove to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Shady Cove.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Shady Cove

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(15.34%)	(15.34%)	(15.34%)	(15.34%)	(15.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**14.25%**	**13.05%**	**19.18%**	**8.92%**	**13.29%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.30%**	**13.10%**	**19.23%**	**8.92%**	**13.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Shady Cove

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$567,819	$418,696
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(305,522)	(322,919)
Allocated pooled OPSRP UAL	47,266	33,074
Side account	0	0
Net unfunded pension actuarial accrued liability	309,563	128,851
Combined valuation payroll	261,771	219,480
Net pension UAL as a percentage of payroll	118%	59%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(15.34%)	(17.70%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,837)	($2,515)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($322,919)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(16.36%)
B. Actual employer payroll	116,135
C. Payment to transition liability/(surplus)	(17,792)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(16.36%)
B. Actual employer payroll	131,364
C. Payment to transition liability/(surplus)	(20,125)
4. Supplemental payment to transition liability	0
5. Interest	(20,520)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($305,522)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(305,522)	(322,919)
2. Combined valuation payroll	261,771	219,480
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(15.34%)**	**(17.70%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	261,771	219,480
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Town of Canyon City/2255
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Town of Canyon City/2255

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Town of Canyon City -- #2255

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Town of Canyon City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Town of Canyon City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Town of Canyon City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	2.16%	2.16%	2.16%	2.16%	2.16%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**30.19%**	**28.99%**	**35.12%**	**24.86%**	**29.23%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.24%**	**29.04%**	**35.17%**	**24.86%**	**29.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Town of Canyon City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$332,601	$285,040
Allocated pre-SLGRP pooled liability/(surplus)	(18,212)	(20,863)
Transition liability/(surplus)	25,168	26,906
Allocated pooled OPSRP UAL	27,686	22,516
Side account	0	0
Net unfunded pension actuarial accrued liability	367,243	313,599
Combined valuation payroll	153,333	149,418
Net pension UAL as a percentage of payroll	240%	210%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	2.16%	2.17%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,248)	($1,712)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$26,906
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	2.35%
B. Actual employer payroll	71,928
C. Payment to transition liability/(surplus)	1,690
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	2.35%
B. Actual employer payroll	73,927
C. Payment to transition liability/(surplus)	1,738
4. Supplemental payment to transition liability	0
5. Interest	1,690
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$25,168**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	25,168	26,906
2. Combined valuation payroll	153,333	149,418
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**2.16%**	**2.17%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	153,333	149,418
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Jordan Valley/2256
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Jordan Valley/2256

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jordan Valley -- #2256

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jordan Valley to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jordan Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Jordan Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(45.58%)	(45.58%)	(45.58%)	(45.58%)	(45.58%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Jordan Valley

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$138,421	$121,710
Allocated pre-SLGRP pooled liability/(surplus)	(7,579)	(8,908)
Transition liability/(surplus)	(221,210)	(216,696)
Allocated pooled OPSRP UAL	11,522	9,614
Side account	0	0
Net unfunded pension actuarial accrued liability	(78,846)	(94,280)
Combined valuation payroll	63,814	63,800
Net pension UAL as a percentage of payroll	(124%)	(148%)
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(45.58%)	(40.86%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($935)	($731)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	49,351	6,337	12.64%	49,237	6,224
Total General Service		**49,351**	**6,337**		**49,237**	**6,224**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$49,351**	**$6,337**		**$49,237**	**$6,224**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($216,696)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(17.83%)
B. Actual employer payroll	30,636
C. Payment to transition liability/(surplus)	(5,175)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(17.83%)
B. Actual employer payroll	30,618
C. Payment to transition liability/(surplus)	(5,168)
4. Supplemental payment to transition liability	0
5. Interest	(14,857)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($221,210)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(221,210)	(216,696)
2. Combined valuation payroll	63,814	63,800
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(45.58%)**	**(40.86%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	63,814	63,800
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Adair Village/2258
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Adair Village/2258

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Adair Village -- #2258

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Adair Village to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Adair Village.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Adair Village

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.48%	0.48%	0.48%	0.48%	0.48%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**28.51%**	**27.31%**	**33.44%**	**23.18%**	**27.55%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.56%**	**27.36%**	**33.49%**	**23.18%**	**27.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Adair Village

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$522,207	$411,410
Allocated pre-SLGRP pooled liability/(surplus)	(28,593)	(30,112)
Transition liability/(surplus)	8,855	9,780
Allocated pooled OPSRP UAL	43,470	32,498
Side account	0	0
Net unfunded pension actuarial accrued liability	545,939	423,576
Combined valuation payroll	240,743	215,661
Net pension UAL as a percentage of payroll	227%	196%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.48%	0.55%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,529)	($2,471)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$9,780
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.67%
B. Actual employer payroll	94,202
C. Payment to transition liability/(surplus)	631
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.67%
B. Actual employer payroll	132,595
C. Payment to transition liability/(surplus)	889
4. Supplemental payment to transition liability	0
5. Interest	595
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$8,855**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	8,855	9,780
2. Combined valuation payroll	240,743	215,661
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**0.48%**	**0.55%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	240,743	215,661
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Riddle/2260
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Riddle/2260

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Riddle -- #2260

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Riddle to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Riddle.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Riddle

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.09%	15.09%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.26%)	(4.26%)	(4.26%)	(4.26%)	(4.26%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.64%**	**24.64%**	**30.26%**	**20.00%**	**24.37%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.69%**	**24.69%**	**30.31%**	**20.00%**	**24.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Riddle

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$624,536	$640,521
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(93,272)	(98,787)
Allocated pooled OPSRP UAL	51,988	50,596
Side account	0	0
Net unfunded pension actuarial accrued liability	583,252	592,330
Combined valuation payroll	287,918	335,761
Net pension UAL as a percentage of payroll	203%	176%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.26%)	(3.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,220)	($3,847)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$62,872	$10,695	17.17%	$125,480	$21,545
Tier 2 General Service	12.84%	53,574	6,879	12.64%	47,673	6,026
Total General Service		**116,446**	**17,574**		**173,153**	**27,571**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$116,446**	**$17,574**		**$173,153**	**$27,571**
Total normal cost rate						
General Service			**15.09%**			**15.92%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.09%**			**15.92%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($98,787)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(3.79%)
B. Actual employer payroll	165,767
C. Payment to transition liability/(surplus)	(6,283)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(3.79%)
B. Actual employer payroll	145,070
C. Payment to transition liability/(surplus)	(5,497)
4. Supplemental payment to transition liability	0
5. Interest	(6,265)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($93,272)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(93,272)	(98,787)
2. Combined valuation payroll	287,918	335,761
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.26%)**	**(3.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	287,918	335,761
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of La Grande/2263
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of La Grande/2263

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of La Grande/2263

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of La Grande -- #2263

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of La Grande to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of La Grande.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of La Grande

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.80%	14.58%	20.80%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(5.07%)	(5.07%)	(5.07%)	(5.07%)	(5.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.98%**	**21.76%**	**27.98%**	**17.63%**	**22.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.03%**	**21.81%**	**28.03%**	**17.63%**	**22.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of La Grande

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$5,357,907	$4,168,585
Allocated pre-SLGRP pooled liability/(surplus)	(293,372)	(305,105)
Transition liability/(surplus)	(953,334)	(1,002,934)
Allocated pooled OPSRP UAL	446,003	329,286
Side account	0	0
Net unfunded pension actuarial accrued liability	4,557,204	3,189,832
Combined valuation payroll	2,470,056	2,185,169
Net pension UAL as a percentage of payroll	185%	146%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(5.07%)	(5.52%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($36,206)	($25,038)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	408,088	90,596	22.26%	389,673	86,741
Tier 2 Police & Fire	20.00%	720,157	144,031	20.05%	709,931	142,341
Total Police & Fire		**1,128,245**	**234,627**		**1,099,604**	**229,082**
Total		**$1,128,245**	**$234,627**		**$1,099,604**	**$229,082**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.80%**			**20.83%**
Aggregate (Default)			**20.80%**			**20.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,002,934)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(5.02%)
B. Actual employer payroll	1,071,435
C. Payment to transition liability/(surplus)	(53,786)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(5.02%)
B. Actual employer payroll	1,192,117
C. Payment to transition liability/(surplus)	(59,844)
4. Supplemental payment to transition liability	0
5. Interest	(64,030)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($953,334)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(953,334)	(1,002,934)
2. Combined valuation payroll	2,470,056	2,185,169
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.07%)**	**(5.52%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,470,056	2,185,169
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Westfir/2265
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Westfir/2265

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Westfir -- #2265

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Westfir to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Westfir.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Westfir

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.94%)	(5.94%)	(5.94%)	(5.94%)	(5.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**23.65%**	**22.45%**	**28.58%**	**18.32%**	**22.69%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.70%**	**22.50%**	**28.63%**	**18.32%**	**22.69%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Westfir

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$211,793	$121,905
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(59,715)	(62,574)
Allocated pooled OPSRP UAL	17,630	9,630
Side account	0	0
Net unfunded pension actuarial accrued liability	169,708	68,961
Combined valuation payroll	97,639	63,903
Net pension UAL as a percentage of payroll	174%	108%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.94%)	(8.98%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,431)	($732)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($62,574)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(9.91%)
B. Actual employer payroll	32,427
C. Payment to transition liability/(surplus)	(3,214)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(9.91%)
B. Actual employer payroll	36,896
C. Payment to transition liability/(surplus)	(3,656)
4. Supplemental payment to transition liability	0
5. Interest	(4,011)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($59,715)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	**December 31, 2017**
1. Total transition liability/(surplus)	(59,715)	(62,574)
2. Combined valuation payroll	97,639	63,903
3. Regular amortization factor	10.288	10.901
4. **Total transition liability/(surplus) rate**	**(5.94%)**	**(8.98%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	97,639	63,903
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Irrigon/2266
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Irrigon/2266

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Irrigon -- #2266

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Irrigon to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Irrigon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Irrigon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.07%	14.07%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(1.41%)	(1.41%)	(1.41%)	(1.41%)	(1.41%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.91%**	**24.91%**	**31.55%**	**21.29%**	**25.66%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.96%**	**24.96%**	**31.60%**	**21.29%**	**25.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Irrigon

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,084,502	$926,935
Allocated pre-SLGRP pooled liability/(surplus)	(59,382)	(67,844)
Transition liability/(surplus)	(53,739)	(56,980)
Allocated pooled OPSRP UAL	90,276	73,221
Side account	0	0
Net unfunded pension actuarial accrued liability	1,061,657	875,332
Combined valuation payroll	499,968	485,899
Net pension UAL as a percentage of payroll	212%	180%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(1.41%)	(1.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,328)	($5,568)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$87,766	$14,929	17.17%	$85,399	$14,663
Tier 2 General Service	12.84%	208,852	26,817	12.64%	202,800	25,634
Total General Service		**296,618**	**41,746**		**288,199**	**40,297**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$296,618**	**$41,746**		**$288,199**	**$40,297**
Total normal cost rate						
General Service			**14.07%**			**13.98%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.07%**			**13.98%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($56,980)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(1.43%)
B. Actual employer payroll	234,002
C. Payment to transition liability/(surplus)	(3,346)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(1.43%)
B. Actual employer payroll	244,971
C. Payment to transition liability/(surplus)	(3,504)
4. Supplemental payment to transition liability	0
5. Interest	(3,609)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($53,739)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(53,739)	(56,980)
2. Combined valuation payroll	499,968	485,899
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.41%)**	**(1.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	499,968	485,899
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Independence/2267
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Independence/2267

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Independence -- #2267

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Independence to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Independence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Independence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.35%	15.14%	22.20%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(2.16%)	(2.16%)	(2.16%)	(2.16%)	(2.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.44%**	**25.23%**	**32.29%**	**20.54%**	**24.91%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.49%**	**25.28%**	**32.34%**	**20.54%**	**24.91%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Independence

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$7,105,921	$5,598,744
Allocated pre-SLGRP pooled liability/(surplus)	(389,085)	(409,780)
Transition liability/(surplus)	(538,790)	(581,444)
Allocated pooled OPSRP UAL	591,511	442,257
Side account	0	0
Net unfunded pension actuarial accrued liability	6,769,557	5,049,777
Combined valuation payroll	3,275,910	2,934,857
Net pension UAL as a percentage of payroll	207%	172%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(2.16%)	(2.38%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($48,018)	($33,628)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$399,898	$68,023	17.17%	$384,159	$65,960
Tier 2 General Service	12.84%	326,679	41,946	12.64%	339,651	42,932
Total General Service		**726,577**	**109,969**		**723,810**	**108,892**
Tier 1 Police & Fire	22.20%	331,373	73,565	22.26%	214,484	47,744
Tier 2 Police & Fire	20.00%	0	0	20.05%	101,551	20,361
Total Police & Fire		**331,373**	**73,565**		**316,035**	**68,105**
Total		**$1,057,950**	**$183,534**		**$1,039,845**	**$176,997**
Total normal cost rate						
General Service			**15.14%**			**15.04%**
Police & Fire			**22.20%**			**21.55%**
Aggregate (Default)			**17.35%**			**17.02%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($581,444)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.59%)
B. Actual employer payroll	1,448,878
C. Payment to transition liability/(surplus)	(37,526)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.59%)
B. Actual employer payroll	1,595,158
C. Payment to transition liability/(surplus)	(41,315)
4. Supplemental payment to transition liability	0
5. Interest	(36,187)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($538,790)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(538,790)	(581,444)
2. Combined valuation payroll	3,275,910	2,934,857
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.16%)**	**(2.38%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,275,910	2,934,857
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Harrisburg/2268
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Harrisburg/2268

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Harrisburg -- #2268

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Harrisburg to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Harrisburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Harrisburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.81%	13.81%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.84%)	(0.84%)	(0.84%)	(0.84%)	(0.84%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.22%**	**25.22%**	**32.12%**	**21.86%**	**26.23%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.27%**	**25.27%**	**32.17%**	**21.86%**	**26.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Harrisburg

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,805,441	$1,498,404
Allocated pre-SLGRP pooled liability/(surplus)	(98,857)	(109,670)
Transition liability/(surplus)	(53,396)	(57,001)
Allocated pooled OPSRP UAL	150,289	118,362
Side account	0	0
Net unfunded pension actuarial accrued liability	1,803,477	1,450,095
Combined valuation payroll	832,329	785,462
Net pension UAL as a percentage of payroll	217%	185%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.84%)	(0.87%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($12,200)	($9,000)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$53,328	$9,071	17.17%	$51,842	$8,901
Tier 2 General Service	12.84%	176,497	22,662	12.64%	169,315	21,401
Total General Service		**229,825**	**31,733**		**221,157**	**30,302**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$229,825**	**$31,733**		**$221,157**	**$30,302**
Total normal cost rate						
General Service			**13.81%**			**13.70%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**13.81%**			**13.70%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($57,001)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(0.91%)
B. Actual employer payroll	399,300
C. Payment to transition liability/(surplus)	(3,634)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(0.91%)
B. Actual employer payroll	390,930
C. Payment to transition liability/(surplus)	(3,557)
4. Supplemental payment to transition liability	0
5. Interest	(3,586)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($53,396)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(53,396)	(57,001)
2. Combined valuation payroll	832,329	785,462
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.84%)**	**(0.87%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	832,329	785,462
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Durham/2269
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System’s staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System’s financial condition as of a single date. It can neither predict the System’s future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System’s funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Durham/2269

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Durham -- #2269

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Durham to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Durham.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Durham

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.23%)	(3.23%)	(3.23%)	(3.23%)	(3.23%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.36%**	**25.16%**	**31.29%**	**21.03%**	**25.40%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.41%**	**25.21%**	**31.34%**	**21.03%**	**25.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Durham

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$232,650	$209,333
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(26,385)	(29,254)
Allocated pooled OPSRP UAL	19,366	16,536
Side account	0	0
Net unfunded pension actuarial accrued liability	225,631	196,615
Combined valuation payroll	107,254	109,732
Net pension UAL as a percentage of payroll	210%	179%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.23%)	(3.21%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,572)	($1,257)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($29,254)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(4.56%)
B. Actual employer payroll	49,581
C. Payment to transition liability/(surplus)	(2,261)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(4.56%)
B. Actual employer payroll	52,202
C. Payment to transition liability/(surplus)	(2,380)
4. Supplemental payment to transition liability	0
5. Interest	(1,772)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($26,385)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(26,385)	(29,254)
2. Combined valuation payroll	107,254	109,732
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(3.23%)**	**(3.21%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	107,254	109,732
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Lyons/2270
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Lyons/2270

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Lyons/2270

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lyons -- #2270

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lyons to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lyons.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Lyons

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.78%)	(2.78%)	(2.78%)	(2.78%)	(2.78%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**28.04%**	**28.04%**	**31.74%**	**21.48%**	**25.85%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.09%**	**28.09%**	**31.79%**	**21.48%**	**25.85%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lyons

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$170,734	$144,525
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(16,650)	(17,641)
Allocated pooled OPSRP UAL	14,212	11,416
Side account	0	0
Net unfunded pension actuarial accrued liability	168,296	138,300
Combined valuation payroll	78,710	75,760
Net pension UAL as a percentage of payroll	214%	183%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.78%)	(2.80%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,154)	($868)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$27,054	$4,602	17.17%	$25,200	$4,327
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**27,054**	**4,602**		**25,200**	**4,327**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$27,054**	**$4,602**		**$25,200**	**$4,327**
Total normal cost rate						
General Service			**17.01%**			**17.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**17.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($17,641)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.79%)
B. Actual employer payroll	37,740
C. Payment to transition liability/(surplus)	(1,053)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.79%)
B. Actual employer payroll	37,857
C. Payment to transition liability/(surplus)	(1,056)
4. Supplemental payment to transition liability	0
5. Interest	(1,118)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($16,650)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(16,650)	(17,641)
2. Combined valuation payroll	78,710	75,760
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.78%)**	**(2.80%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

		December 31, 2018	December 31, 2017
1.	Total side account	$0	$0
2.	Combined valuation payroll	78,710	75,760
3.	Average amortization factor	7.606	8.312
4.	Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Columbia City/2271
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

December 2019
City of Columbia City/2271

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Columbia City/2271

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Columbia City -- #2271

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Columbia City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Columbia City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Columbia City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.20%	14.58%	22.20%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.06%)	(0.06%)	(0.06%)	(0.06%)	(0.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**34.39%**	**26.77%**	**34.39%**	**22.64%**	**27.01%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**34.44%**	**26.82%**	**34.44%**	**22.64%**	**27.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Columbia City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,093,042	$1,001,651
Allocated pre-SLGRP pooled liability/(surplus)	(59,850)	(73,312)
Transition liability/(surplus)	(2,455)	(2,691)
Allocated pooled OPSRP UAL	90,987	79,123
Side account	0	0
Net unfunded pension actuarial accrued liability	1,121,724	1,004,771
Combined valuation payroll	503,905	525,065
Net pension UAL as a percentage of payroll	223%	191%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.06%)	(0.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,386)	($6,016)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$108,413	$18,615
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**108,413**	**18,615**
Tier 1 Police & Fire	22.20%	16,823	3,735	22.26%	12,184	2,712
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**16,823**	**3,735**		**12,184**	**2,712**
Total		**$16,823**	**$3,735**		**$120,597**	**$21,327**
Total normal cost rate						
General Service			**14.58%**			**17.17%**
Police & Fire			**22.20%**			**22.26%**
Aggregate (Default)			**22.20%**			**17.68%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($2,691)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	268,580
C. Payment to transition liability/(surplus)	(188)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	303,398
C. Payment to transition liability/(surplus)	(213)
4. Supplemental payment to transition liability	0
5. Interest	(165)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,455)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(2,455)	(2,691)
2. Combined valuation payroll	503,905	525,065
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.06%)**	**(0.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	503,905	525,065
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Aurora/2272
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Aurora/2272

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Aurora/2272

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aurora -- #2272

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aurora to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aurora.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Aurora

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.91%)	(11.91%)	(11.91%)	(11.91%)	(11.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**17.68%**	**16.48%**	**22.61%**	**12.35%**	**16.72%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**17.73%**	**16.53%**	**22.66%**	**12.35%**	**16.72%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aurora

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$529,205	$320,870
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(221,060)	(242,514)
Allocated pooled OPSRP UAL	44,052	25,346
Side account	0	0
Net unfunded pension actuarial accrued liability	352,197	103,702
Combined valuation payroll	243,970	168,200
Net pension UAL as a percentage of payroll	144%	62%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.91%)	(17.35%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,576)	($1,927)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($242,514)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(17.21%)
B. Actual employer payroll	118,370
C. Payment to transition liability/(surplus)	(18,134)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(17.21%)
B. Actual employer payroll	118,584
C. Payment to transition liability/(surplus)	(18,167)
4. Supplemental payment to transition liability	0
5. Interest	(14,847)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($221,060)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(221,060)	(242,514)
2. Combined valuation payroll	243,970	168,200
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(11.91%)**	**(17.35%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	243,970	168,200
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Silverton/2273
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Silverton/2273

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Silverton/2273

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Silverton -- #2273

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Silverton to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Silverton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Silverton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.81%	14.89%	21.10%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.10%)	(0.10%)	(0.10%)	(0.10%)	(0.10%)
Side account rate relief [2]	(2.53%)	(2.53%)	(2.53%)	(2.53%)	(2.53%)
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.43%**	**24.51%**	**30.72%**	**20.07%**	**24.44%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.48%**	**24.56%**	**30.77%**	**20.07%**	**24.44%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Silverton

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$6,135,885	$5,750,103
Allocated pre-SLGRP pooled liability/(surplus)	(335,971)	(420,859)
Transition liability/(surplus)	(22,528)	(23,616)
Allocated pooled OPSRP UAL	510,763	454,213
Side account	545,098	606,861
Net unfunded pension actuarial accrued liability	5,743,051	5,152,980
Combined valuation payroll	2,828,713	3,014,200
Net pension UAL as a percentage of payroll	203%	171%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.10%)	(0.09%)
Side account rate relief	(2.53%)	(2.42%)
Allocated pooled RHIA UAL	($41,463)	($34,537)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$420,194	$71,475	17.17%	$660,838	$113,466
Tier 2 General Service	12.84%	435,789	55,955	12.64%	360,120	45,519
Total General Service		**855,983**	**127,430**		**1,020,958**	**158,985**
Tier 1 Police & Fire	22.20%	191,491	42,511	22.26%	179,683	39,997
Tier 2 Police & Fire	20.00%	191,347	38,269	20.05%	245,002	49,123
Total Police & Fire		**382,838**	**80,780**		**424,685**	**89,120**
Total		**$1,238,821**	**$208,210**		**$1,445,643**	**$248,105**
Total normal cost rate						
General Service			**14.89%**			**15.57%**
Police & Fire			**21.10%**			**20.98%**
Aggregate (Default)			**16.81%**			**17.16%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($23,616)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,427,739
C. Payment to transition liability/(surplus)	(1,285)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,461,380
C. Payment to transition liability/(surplus)	(1,316)
4. Supplemental payment to transition liability	0
5. Interest	(1,513)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($22,528)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(22,528)	(23,616)
2. Combined valuation payroll	2,828,713	3,014,200
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.10%)**	**(0.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**	**$606,861**	**$606,861**
2. Deposits during 2018			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2018		(64,852)	(64,852)
5. Side account earnings during 2018		3,589	3,589
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***		**$545,098**	**$545,098**

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	$545,098	$606,861
Side Account 2	0	0
Side Account 3	0	0
Total	**$545,098**	**$606,861**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$545,098	$606,861
2. Combined valuation payroll	2,828,713	3,014,200
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(2.53%)	(2.42%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Gold Hill/2274
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Gold Hill/2274

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Gold Hill/2274

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gold Hill -- #2274

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gold Hill to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gold Hill.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Gold Hill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(35.18%)	(35.18%)	(35.18%)	(35.18%)	(35.18%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gold Hill

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$197,079	$198,755
Allocated pre-SLGRP pooled liability/(surplus)	(10,791)	(14,547)
Transition liability/(surplus)	(243,127)	(241,659)
Allocated pooled OPSRP UAL	16,405	15,700
Side account	0	0
Net unfunded pension actuarial accrued liability	(40,434)	(41,751)
Combined valuation payroll	90,856	104,187
Net pension UAL as a percentage of payroll	(45%)	(40%)
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(35.18%)	(27.91%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,332)	($1,194)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$9,627	$1,653
Tier 2 General Service	12.84%	0	0	12.64%	57,051	7,211
Total General Service		**0**	**0**		**66,678**	**8,864**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$66,678**	**$8,864**
Total normal cost rate						
General Service			**14.58%**			**13.29%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**13.29%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($241,659)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(12.37%)
B. Actual employer payroll	60,791
C. Payment to transition liability/(surplus)	(7,520)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(12.37%)
B. Actual employer payroll	59,346
C. Payment to transition liability/(surplus)	(7,341)
4. Supplemental payment to transition liability	0
5. Interest	(16,329)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($243,127)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(243,127)	(241,659)
2. Combined valuation payroll	90,856	104,187
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(35.18%)**	**(27.91%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	90,856	104,187
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Toledo/2275
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Toledo/2275

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Toledo -- #2275

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Toledo to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Toledo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Toledo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.03%	13.65%	20.72%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(10.80%)	(10.80%)	(10.80%)	(10.80%)	(10.80%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**18.48%**	**15.10%**	**22.17%**	**11.90%**	**16.27%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.53%**	**15.15%**	**22.22%**	**11.90%**	**16.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Toledo

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$4,600,576	$3,447,743
Allocated pre-SLGRP pooled liability/(surplus)	(251,905)	(252,345)
Transition liability/(surplus)	(1,741,747)	(1,816,746)
Allocated pooled OPSRP UAL	382,961	272,345
Side account	0	0
Net unfunded pension actuarial accrued liability	2,989,885	1,650,997
Combined valuation payroll	2,120,917	1,807,304
Net pension UAL as a percentage of payroll	141%	91%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(10.80%)	(12.09%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($31,088)	($20,708)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$56,091	$9,541	17.17%	$56,113	$9,635
Tier 2 General Service	12.84%	233,488	29,980	12.64%	211,753	26,766
Total General Service		**289,579**	**39,521**		**267,866**	**36,401**
Tier 1 Police & Fire	22.20%	87,162	19,350	22.26%	62,242	13,855
Tier 2 Police & Fire	20.00%	178,366	35,673	20.05%	262,261	52,583
Total Police & Fire		**265,528**	**55,023**		**324,503**	**66,438**
Total		**$555,107**	**$94,544**		**$592,369**	**$102,839**
Total normal cost rate						
General Service			**13.65%**			**13.59%**
Police & Fire			**20.72%**			**20.47%**
Aggregate (Default)			**17.03%**			**17.36%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,816,746)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(9.53%)
B. Actual employer payroll	980,156
C. Payment to transition liability/(surplus)	(93,409)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(9.53%)
B. Actual employer payroll	1,034,346
C. Payment to transition liability/(surplus)	(98,573)
4. Supplemental payment to transition liability	0
5. Interest	(116,983)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,741,747)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,741,747)	(1,816,746)
2. Combined valuation payroll	2,120,917	1,807,304
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(10.80%)**	**(12.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,120,917	1,807,304
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Newport/2276
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Newport/2276

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Newport/2276

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Newport -- #2276

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Newport to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Newport.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Newport

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.62%	14.58%	20.62%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(5.10%)	(5.10%)	(5.10%)	(5.10%)	(5.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.77%**	**21.73%**	**27.77%**	**17.60%**	**21.97%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.82%**	**21.78%**	**27.82%**	**17.60%**	**21.97%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Newport

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$6,020,757	$5,061,656
Allocated pre-SLGRP pooled liability/(surplus)	(329,667)	(370,470)
Transition liability/(surplus)	(1,076,135)	(1,185,413)
Allocated pooled OPSRP UAL	501,180	399,831
Side account	0	0
Net unfunded pension actuarial accrued liability	5,116,135	3,905,604
Combined valuation payroll	2,775,637	2,653,316
Net pension UAL as a percentage of payroll	184%	147%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(5.10%)	(5.37%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($40,685)	($30,402)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	324,021	71,933	22.26%	307,243	68,392
Tier 2 Police & Fire	20.00%	819,934	163,987	20.05%	781,221	156,635
Total Police & Fire		**1,143,955**	**235,920**		**1,088,464**	**225,027**
Total		**$1,143,955**	**$235,920**		**$1,088,464**	**$225,027**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.62%**			**20.67%**
Aggregate (Default)			**20.62%**			**20.67%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,185,413)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(6.54%)
B. Actual employer payroll	1,364,086
C. Payment to transition liability/(surplus)	(89,211)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(6.54%)
B. Actual employer payroll	1,412,006
C. Payment to transition liability/(surplus)	(92,345)
4. Supplemental payment to transition liability	0
5. Interest	(72,278)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,076,135)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,076,135)	(1,185,413)
2. Combined valuation payroll	2,775,637	2,653,316
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.10%)**	**(5.37%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,775,637	2,653,316
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Springfield/2278
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Springfield/2278

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Springfield -- #2278

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Springfield to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Springfield.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Springfield

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.43%	13.44%	20.89%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.33%)	(7.33%)	(7.33%)	(7.33%)	(7.33%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**23.91%**	**19.92%**	**27.37%**	**16.93%**	**21.30%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.96%**	**19.97%**	**27.42%**	**16.93%**	**21.30%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Springfield

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$69,221,116	$57,597,266
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(17,800,697)	(18,922,484)
Allocated pooled OPSRP UAL	5,762,104	4,549,733
Side account	0	0
Net unfunded pension actuarial accrued liability	57,182,523	43,224,515
Combined valuation payroll	31,911,718	30,192,446
Net pension UAL as a percentage of payroll	179%	143%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.33%)	(7.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($467,755)	($345,951)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$998,704	$169,880	17.17%	$953,479	$163,712
Tier 2 General Service	12.84%	5,887,714	755,982	12.64%	6,129,625	774,785
Total General Service		**6,886,418**	**925,862**		**7,083,104**	**938,497**
Tier 1 Police & Fire	22.20%	3,191,069	708,417	22.26%	3,316,499	738,253
Tier 2 Police & Fire	20.00%	4,730,255	946,051	20.05%	4,555,120	913,302
Total Police & Fire		**7,921,324**	**1,654,468**		**7,871,619**	**1,651,555**
Total		**$14,807,742**	**$2,580,330**		**$14,954,723**	**$2,590,052**
Total normal cost rate						
General Service			**13.44%**			**13.25%**
Police & Fire			**20.89%**			**20.98%**
Aggregate (Default)			**17.43%**			**17.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($18,922,484)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(7.44%)
B. Actual employer payroll	14,803,560
C. Payment to transition liability/(surplus)	(1,101,385)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(7.44%)
B. Actual employer payroll	16,343,692
C. Payment to transition liability/(surplus)	(1,215,971)
4. Supplemental payment to transition liability	0
5. Interest	(1,195,569)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($17,800,697)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(17,800,697)	(18,922,484)
2. Combined valuation payroll	31,911,718	30,192,446
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(7.33%)**	**(7.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	31,911,718	30,192,446
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Winston/2280
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Winston/2280

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Winston/2280

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Winston -- #2280

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Winston to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Winston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Winston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.13%	12.84%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(10.14%)	(10.14%)	(10.14%)	(10.14%)	(10.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**20.24%**	**14.95%**	**22.11%**	**12.56%**	**16.93%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.29%**	**15.00%**	**22.16%**	**12.56%**	**16.93%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Winston

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,849,481	$2,336,824
Allocated pre-SLGRP pooled liability/(surplus)	(156,023)	(171,036)
Transition liability/(surplus)	(1,013,523)	(1,069,279)
Allocated pooled OPSRP UAL	237,197	184,591
Side account	0	0
Net unfunded pension actuarial accrued liability	1,917,132	1,281,100
Combined valuation payroll	1,313,643	1,224,962
Net pension UAL as a percentage of payroll	146%	105%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(10.14%)	(10.50%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($19,255)	($14,036)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	65,033	8,350	12.64%	62,998	7,963
Total General Service		**65,033**	**8,350**		**62,998**	**7,963**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	184,418	36,884	20.05%	177,987	35,686
Total Police & Fire		**184,418**	**36,884**		**177,987**	**35,686**
Total		**$249,451**	**$45,234**		**$240,985**	**$43,649**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**18.13%**			**18.11%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,069,279)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(9.59%)
B. Actual employer payroll	610,685
C. Payment to transition liability/(surplus)	(58,565)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(9.59%)
B. Actual employer payroll	680,536
C. Payment to transition liability/(surplus)	(65,263)
4. Supplemental payment to transition liability	0
5. Interest	(68,072)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,013,523)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,013,523)	(1,069,279)
2. Combined valuation payroll	1,313,643	1,224,962
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(10.14%)**	**(10.50%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,313,643	1,224,962
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Manzanita/2281
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Manzanita/2281

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Manzanita/2281

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Manzanita -- #2281

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Manzanita to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Manzanita.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Manzanita

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.00%	14.58%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(1.08%)	(1.08%)	(1.08%)	(1.08%)	(1.08%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**31.17%**	**25.75%**	**31.17%**	**21.62%**	**25.99%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.22%**	**25.80%**	**31.22%**	**21.62%**	**25.99%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Manzanita

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,453,543	$1,155,056
Allocated pre-SLGRP pooled liability/(surplus)	(79,589)	(84,540)
Transition liability/(surplus)	(55,074)	(57,979)
Allocated pooled OPSRP UAL	120,996	91,240
Side account	0	0
Net unfunded pension actuarial accrued liability	1,439,876	1,103,777
Combined valuation payroll	670,100	605,479
Net pension UAL as a percentage of payroll	215%	182%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(1.08%)	(1.15%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,822)	($6,938)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	90,766	18,153	20.05%	83,300	16,702
Total Police & Fire		**90,766**	**18,153**		**83,300**	**16,702**
Total		**$90,766**	**$18,153**		**$83,300**	**$16,702**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.00%**			**20.05%**
Aggregate (Default)			**20.00%**			**20.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($57,979)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	324,034
C. Payment to transition liability/(surplus)	(3,273)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	329,792
C. Payment to transition liability/(surplus)	(3,331)
4. Supplemental payment to transition liability	0
5. Interest	(3,699)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($55,074)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(55,074)	(57,979)
2. Combined valuation payroll	670,100	605,479
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.08%)**	**(1.15%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	670,100	605,479
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Halsey/2284
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Halsey/2284

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Halsey/2284

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Halsey -- #2284

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Halsey to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Halsey.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Halsey

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.44%)	(6.44%)	(6.44%)	(6.44%)	(6.44%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**20.21%**	**20.21%**	**28.08%**	**17.82%**	**22.19%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.26%**	**20.26%**	**28.13%**	**17.82%**	**22.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Halsey

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$506,900	$398,373
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(114,385)	(123,889)
Allocated pooled OPSRP UAL	42,195	31,468
Side account	0	0
Net unfunded pension actuarial accrued liability	434,710	305,952
Combined valuation payroll	233,687	208,827
Net pension UAL as a percentage of payroll	186%	147%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.44%)	(7.14%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,425)	($2,393)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	67,838	8,710	12.64%	84,419	10,671
Total General Service		**67,838**	**8,710**		**84,419**	**10,671**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$67,838**	**$8,710**		**$84,419**	**$10,671**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($123,889)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(7.15%)
B. Actual employer payroll	114,554
C. Payment to transition liability/(surplus)	(8,191)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(7.15%)
B. Actual employer payroll	125,813
C. Payment to transition liability/(surplus)	(8,996)
4. Supplemental payment to transition liability	0
5. Interest	(7,683)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($114,385)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(114,385)	(123,889)
2. Combined valuation payroll	233,687	208,827
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.44%)**	**(7.14%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	233,687	208,827
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Veneta/2285
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Veneta/2285

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Veneta -- #2285

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Veneta to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Veneta.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Veneta

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.89%	15.89%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(2.32%)	(2.32%)	(2.32%)	(2.32%)	(2.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.82%**	**25.82%**	**30.64%**	**20.38%**	**24.75%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.87%**	**25.87%**	**30.69%**	**20.38%**	**24.75%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Veneta

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$2,262,198	$1,799,280
Allocated pre-SLGRP pooled liability/(surplus)	(123,867)	(131,692)
Transition liability/(surplus)	(184,160)	(196,941)
Allocated pooled OPSRP UAL	188,310	142,129
Side account	0	0
Net unfunded pension actuarial accrued liability	2,142,481	1,612,776
Combined valuation payroll	1,042,899	943,181
Net pension UAL as a percentage of payroll	205%	171%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(2.32%)	(2.51%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($15,287)	($10,807)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$370,209	$62,973	17.17%	$352,242	$60,480
Tier 2 General Service	12.84%	136,102	17,475	12.64%	184,873	23,368
Total General Service		**506,311**	**80,448**		**537,115**	**83,848**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$506,311**	**$80,448**		**$537,115**	**$83,848**
Total normal cost rate						
General Service			**15.89%**			**15.61%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.89%**			**15.61%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($196,941)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.56%)
B. Actual employer payroll	467,085
C. Payment to transition liability/(surplus)	(11,957)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.56%)
B. Actual employer payroll	515,354
C. Payment to transition liability/(surplus)	(13,193)
4. Supplemental payment to transition liability	0
5. Interest	(12,369)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($184,160)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(184,160)	(196,941)
2. Combined valuation payroll	1,042,899	943,181
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.32%)**	**(2.51%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,042,899	943,181
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Millersburg/2286
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Millersburg/2286

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Millersburg/2286

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Millersburg -- #2286

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Millersburg to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Millersburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Millersburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.01%)	(1.01%)	(1.01%)	(1.01%)	(1.01%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.64%**	**25.64%**	**33.51%**	**23.25%**	**27.62%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.69%**	**25.69%**	**33.56%**	**23.25%**	**27.62%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Millersburg

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$801,169	$499,230
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(28,455)	(30,802)
Allocated pooled OPSRP UAL	66,691	39,435
Side account	0	0
Net unfunded pension actuarial accrued liability	839,405	507,863
Combined valuation payroll	369,348	261,696
Net pension UAL as a percentage of payroll	227%	194%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.01%)	(1.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,414)	($2,999)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	60,512	7,770	12.64%	130,092	16,444
Total General Service		**60,512**	**7,770**		**130,092**	**16,444**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$60,512**	**$7,770**		**$130,092**	**$16,444**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($30,802)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(1.56%)
B. Actual employer payroll	121,597
C. Payment to transition liability/(surplus)	(1,897)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(1.56%)
B. Actual employer payroll	151,339
C. Payment to transition liability/(surplus)	(2,361)
4. Supplemental payment to transition liability	0
5. Interest	(1,911)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($28,455)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(28,455)	(30,802)
2. Combined valuation payroll	369,348	261,696
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.01%)**	**(1.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	369,348	261,696
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of King City/2287
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of King City/2287

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of King City -- #2287

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of King City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of King City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of King City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.62%	14.58%	20.62%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.26%)	(4.26%)	(4.26%)	(4.26%)	(4.26%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**30.17%**	**24.13%**	**30.17%**	**20.00%**	**24.37%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.22%**	**24.18%**	**30.22%**	**20.00%**	**24.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of King City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$895,222	$781,631
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(133,838)	(142,401)
Allocated pooled OPSRP UAL	74,520	61,743
Side account	0	0
Net unfunded pension actuarial accrued liability	835,904	700,973
Combined valuation payroll	412,708	409,731
Net pension UAL as a percentage of payroll	203%	171%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.26%)	(4.18%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,049)	($4,695)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	59,541	13,218	22.26%	63,639	14,166
Tier 2 Police & Fire	20.00%	151,564	30,313	20.05%	142,292	28,530
Total Police & Fire		**211,105**	**43,531**		**205,931**	**42,696**
Total		**$211,105**	**$43,531**		**$205,931**	**$42,696**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.62%**			**20.73%**
Aggregate (Default)			**20.62%**			**20.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($142,401)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	190,402
C. Payment to transition liability/(surplus)	(8,492)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	203,152
C. Payment to transition liability/(surplus)	(9,060)
4. Supplemental payment to transition liability	0
5. Interest	(8,989)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($133,838)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(133,838)	(142,401)
2. Combined valuation payroll	412,708	409,731
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.26%)**	**(4.18%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	412,708	409,731
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Tualatin/2288
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Tualatin/2288

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Tualatin/2288

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tualatin -- #2288

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tualatin to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tualatin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Tualatin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.19%	13.23%	20.46%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	1.50%	1.50%	1.50%	1.50%	1.50%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**30.94%**	**26.98%**	**34.21%**	**24.20%**	**28.57%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.99%**	**27.03%**	**34.26%**	**24.20%**	**28.57%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tualatin

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$24,111,457	$21,455,723
Allocated pre-SLGRP pooled liability/(surplus)	(1,320,224)	(1,570,376)
Transition liability/(surplus)	1,271,128	1,351,539
Allocated pooled OPSRP UAL	2,007,086	1,694,834
Side account	0	0
Net unfunded pension actuarial accrued liability	26,069,447	22,931,720
Combined valuation payroll	11,115,654	11,247,075
Net pension UAL as a percentage of payroll	235%	204%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	1.50%	1.45%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($162,931)	($128,871)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$130,054	$22,122	17.17%	$504,946	$86,699
Tier 2 General Service	12.84%	1,248,106	160,257	12.64%	1,431,741	180,972
Total General Service		**1,378,160**	**182,379**		**1,936,687**	**267,671**
Tier 1 Police & Fire	22.20%	350,307	77,768	22.26%	570,003	126,883
Tier 2 Police & Fire	20.00%	1,318,482	263,696	20.05%	1,289,192	258,483
Total Police & Fire		**1,668,789**	**341,464**		**1,859,195**	**385,366**
Total		**$3,046,949**	**$523,843**		**$3,795,882**	**$653,037**
Total normal cost rate						
General Service			**13.23%**			**13.82%**
Police & Fire			**20.46%**			**20.73%**
Aggregate (Default)			**17.19%**			**17.20%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$1,351,539
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	1.50%
B. Actual employer payroll	5,507,626
C. Payment to transition liability/(surplus)	82,614
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	1.50%
B. Actual employer payroll	5,544,679
C. Payment to transition liability/(surplus)	83,171
4. Supplemental payment to transition liability	0
5. Interest	85,374
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,271,128**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	1,271,128	1,351,539
2. Combined valuation payroll	11,115,654	11,247,075
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.50%**	**1.45%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	11,115,654	11,247,075
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Florence/2291
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Florence/2291

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Florence -- #2291

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Florence to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Florence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Florence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.55%	13.97%	20.00%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.90%)	(9.90%)	(9.90%)	(9.90%)	(9.90%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**19.46%**	**17.88%**	**23.91%**	**14.36%**	**18.73%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.51%**	**17.93%**	**23.96%**	**14.36%**	**18.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Florence

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$7,027,226	$5,911,916
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,438,516)	(2,594,416)
Allocated pooled OPSRP UAL	584,960	466,995
Side account	0	0
Net unfunded pension actuarial accrued liability	5,173,670	3,784,495
Combined valuation payroll	3,239,631	3,099,022
Net pension UAL as a percentage of payroll	160%	122%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.90%)	(10.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($47,486)	($35,509)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$184,262	$31,343	17.17%	$180,421	$30,978
Tier 2 General Service	12.84%	497,839	63,923	12.64%	481,480	60,859
Total General Service		**682,101**	**95,266**		**661,901**	**91,837**
Tier 1 Police & Fire	22.20%	0	0	22.26%	264,395	58,854
Tier 2 Police & Fire	20.00%	242,404	48,481	20.05%	242,550	48,631
Total Police & Fire		**242,404**	**48,481**		**506,945**	**107,485**
Total		**$924,505**	**$143,747**		**$1,168,846**	**$199,322**
Total normal cost rate						
General Service			**13.97%**			**13.87%**
Police & Fire			**20.00%**			**21.20%**
Aggregate (Default)			**15.55%**			**17.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($2,594,416)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	1,617,721
C. Payment to transition liability/(surplus)	(158,860)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	1,637,687
C. Payment to transition liability/(surplus)	(160,821)
4. Supplemental payment to transition liability	0
5. Interest	(163,781)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,438,516)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(2,438,516)	(2,594,416)
2. Combined valuation payroll	3,239,631	3,099,022
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(9.90%)**	**(10.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,239,631	3,099,022
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of North Bend/2292
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

December 2019
City of North Bend/2292

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of North Bend/2292

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Bend -- #2292

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Bend to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Bend.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of North Bend

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.87%	14.45%	20.68%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(2.45%)	(2.45%)	(2.45%)	(2.45%)	(2.45%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.67%**	**24.25%**	**30.48%**	**20.25%**	**24.62%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.72%**	**24.30%**	**30.53%**	**20.25%**	**24.62%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Bend

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$9,550,444	$7,902,190
Allocated pre-SLGRP pooled liability/(surplus)	(522,935)	(578,373)
Transition liability/(surplus)	(820,291)	(887,897)
Allocated pooled OPSRP UAL	794,998	624,211
Side account	0	0
Net unfunded pension actuarial accrued liability	9,002,216	7,060,131
Combined valuation payroll	4,402,863	4,142,323
Net pension UAL as a percentage of payroll	204%	170%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(2.45%)	(2.58%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($64,536)	($47,464)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$280,866	$47,775	17.17%	$294,199	$50,514
Tier 2 General Service	12.84%	445,533	57,206	12.64%	428,144	54,117
Total General Service		**726,399**	**104,981**		**722,343**	**104,631**
Tier 1 Police & Fire	22.20%	272,355	60,463	22.26%	362,414	80,673
Tier 2 Police & Fire	20.00%	613,562	122,712	20.05%	591,567	118,609
Total Police & Fire		**885,917**	**183,175**		**953,981**	**199,282**
Total		**$1,612,316**	**$288,156**		**$1,676,324**	**$303,913**
Total normal cost rate						
General Service			**14.45%**			**14.48%**
Police & Fire			**20.68%**			**20.89%**
Aggregate (Default)			**17.87%**			**18.13%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($887,897)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.86%)
B. Actual employer payroll	2,093,850
C. Payment to transition liability/(surplus)	(59,884)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.86%)
B. Actual employer payroll	2,196,388
C. Payment to transition liability/(surplus)	(62,816)
4. Supplemental payment to transition liability	0
5. Interest	(55,094)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($820,291)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(820,291)	(887,897)
2. Combined valuation payroll	4,402,863	4,142,323
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.45%)**	**(2.58%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	4,402,863	4,142,323
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Lowell/2293
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Lowell/2293

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Lowell/2293

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lowell -- #2293

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lowell to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lowell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Lowell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.74%)	(3.74%)	(3.74%)	(3.74%)	(3.74%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.85%**	**24.65%**	**30.78%**	**20.52%**	**24.89%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.90%**	**24.70%**	**30.83%**	**20.52%**	**24.89%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lowell

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$459,536	$525,492
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(60,328)	(68,076)
Allocated pooled OPSRP UAL	38,253	41,510
Side account	0	0
Net unfunded pension actuarial accrued liability	437,461	498,926
Combined valuation payroll	211,851	275,463
Net pension UAL as a percentage of payroll	206%	181%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.74%)	(2.97%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,105)	($3,156)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($68,076)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(4.25%)
B. Actual employer payroll	141,932
C. Payment to transition liability/(surplus)	(6,032)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(4.25%)
B. Actual employer payroll	135,725
C. Payment to transition liability/(surplus)	(5,768)
4. Supplemental payment to transition liability	0
5. Interest	(4,052)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($60,328)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(60,328)	(68,076)
2. Combined valuation payroll	211,851	275,463
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(3.74%)**	**(2.97%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	211,851	275,463
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Depoe Bay/2294
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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December 2019
City of Depoe Bay/2294

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Depoe Bay/2294

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Depoe Bay -- #2294

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Depoe Bay to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Depoe Bay.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Depoe Bay

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.18%	15.18%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.08%)	(0.08%)	(0.08%)	(0.08%)	(0.08%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.35%**	**27.35%**	**32.88%**	**22.62%**	**26.99%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.40%**	**27.40%**	**32.93%**	**22.62%**	**26.99%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Depoe Bay

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,419,154	$960,120
Allocated pre-SLGRP pooled liability/(surplus)	(77,706)	(70,273)
Transition liability/(surplus)	(3,881)	(4,088)
Allocated pooled OPSRP UAL	118,133	75,842
Side account	0	0
Net unfunded pension actuarial accrued liability	1,455,700	961,601
Combined valuation payroll	654,246	503,294
Net pension UAL as a percentage of payroll	223%	191%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.08%)	(0.10%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,590)	($5,767)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$91,047	$15,487	17.17%	$87,868	$15,087
Tier 2 General Service	12.84%	71,347	9,161	12.64%	162,586	20,551
Total General Service		**162,394**	**24,648**		**250,454**	**35,638**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$162,394**	**$24,648**		**$250,454**	**$35,638**
Total normal cost rate						
General Service			**15.18%**			**14.23%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.18%**			**14.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($4,088)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	324,661
C. Payment to transition liability/(surplus)	(227)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	344,697
C. Payment to transition liability/(surplus)	(241)
4. Supplemental payment to transition liability	0
5. Interest	(261)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,881)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(3,881)	(4,088)
2. Combined valuation payroll	654,246	503,294
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.08%)**	**(0.10%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	654,246	503,294
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Tigard/2295
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Tigard/2295

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tigard -- #2295

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tigard to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tigard.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Tigard

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.30%	14.58%	20.30%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(5.68%)	(5.68%)	(5.68%)	(5.68%)	(5.68%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.87%**	**21.15%**	**26.87%**	**17.02%**	**21.39%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.92%**	**21.20%**	**26.92%**	**17.02%**	**21.39%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tigard

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$13,897,888	$12,145,610
Allocated pre-SLGRP pooled liability/(surplus)	(760,980)	(888,955)
Transition liability/(surplus)	(2,770,142)	(2,930,788)
Allocated pooled OPSRP UAL	1,156,888	959,408
Side account	0	0
Net unfunded pension actuarial accrued liability	11,523,654	9,285,275
Combined valuation payroll	6,407,084	6,366,720
Net pension UAL as a percentage of payroll	180%	146%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(5.68%)	(5.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($93,914)	($72,951)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

1 *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	342,908	76,126	22.26%	717,565	159,730
Tier 2 Police & Fire	20.00%	2,161,923	432,385	20.05%	2,143,351	429,742
Total Police & Fire		**2,504,831**	**508,511**		**2,860,916**	**589,472**
Total		**$2,504,831**	**$508,511**		**$2,860,916**	**$589,472**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.30%**			**20.60%**
Aggregate (Default)			**20.30%**			**20.60%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($2,930,788)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(5.40%)
B. Actual employer payroll	3,191,996
C. Payment to transition liability/(surplus)	(172,368)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(5.40%)
B. Actual employer payroll	3,228,376
C. Payment to transition liability/(surplus)	(174,332)
4. Supplemental payment to transition liability	0
5. Interest	(186,054)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,770,142)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(2,770,142)	(2,930,788)
2. Combined valuation payroll	6,407,084	6,366,720
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(5.68%)**	**(5.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	6,407,084	6,366,720
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Happy Valley/2296
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Happy Valley/2296

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Happy Valley/2296

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Happy Valley -- #2296

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Happy Valley to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Happy Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Happy Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.11%	14.11%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.36%**	**26.36%**	**32.96%**	**22.70%**	**27.07%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.41%**	**26.41%**	**33.01%**	**22.70%**	**27.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Happy Valley

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$10,061,332	$8,275,676
Allocated pre-SLGRP pooled liability/(surplus)	(550,909)	(605,709)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	837,525	653,714
Side account	0	0
Net unfunded pension actuarial accrued liability	10,347,948	8,323,681
Combined valuation payroll	4,638,388	4,338,104
Net pension UAL as a percentage of payroll	223%	192%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($67,988)	($49,707)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$346,099	$58,871	17.17%	$356,866	$61,274
Tier 2 General Service	12.84%	790,361	101,482	12.64%	753,782	95,278
Total General Service		**1,136,460**	**160,353**		**1,110,648**	**156,552**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,136,460**	**$160,353**		**$1,110,648**	**$156,552**
Total normal cost rate						
General Service			**14.11%**			**14.10%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.11%**			**14.10%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$0
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,638,388	4,338,104
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	4,638,388	4,338,104
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Lincoln City/2298
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Lincoln City/2298

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lincoln City -- #2298

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lincoln City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lincoln City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Lincoln City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.70%	14.30%	21.67%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.04%)	(6.04%)	(6.04%)	(6.04%)	(6.04%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.47%**	**22.07%**	**29.44%**	**18.22%**	**22.59%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.52%**	**22.12%**	**29.49%**	**18.22%**	**22.59%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lincoln City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$17,502,225	$13,336,239
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,706,670)	(3,938,388)
Allocated pooled OPSRP UAL	1,456,920	1,053,459
Side account	0	0
Net unfunded pension actuarial accrued liability	15,252,475	10,451,310
Combined valuation payroll	8,068,724	6,990,847
Net pension UAL as a percentage of payroll	189%	150%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.04%)	(6.78%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($118,270)	($80,102)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$547,012	$93,047	17.17%	$531,266	$91,218
Tier 2 General Service	12.84%	1,012,069	129,950	12.64%	1,036,778	131,049
Total General Service		**1,559,081**	**222,997**		**1,568,044**	**222,267**
Tier 1 Police & Fire	22.20%	570,633	126,681	22.26%	550,846	122,618
Tier 2 Police & Fire	20.00%	182,604	36,521	20.05%	179,969	36,084
Total Police & Fire		**753,237**	**163,202**		**730,815**	**158,702**
Total		**$2,312,318**	**$386,199**		**$2,298,859**	**$380,969**
Total normal cost rate						
General Service			**14.30%**			**14.17%**
Police & Fire			**21.67%**			**21.72%**
Aggregate (Default)			**16.70%**			**16.57%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($3,938,388)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	3,533,796
C. Payment to transition liability/(surplus)	(226,870)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	3,953,331
C. Payment to transition liability/(surplus)	(253,803)
4. Supplemental payment to transition liability	0
5. Interest	(248,955)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,706,670)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(3,706,670)	(3,938,388)
2. Combined valuation payroll	8,068,724	6,990,847
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.04%)**	**(6.78%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	8,068,724	6,990,847
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Dunes City/2299
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Dunes City/2299

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dunes City -- #2299

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dunes City to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dunes City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Dunes City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	6.82%	6.82%	6.82%	6.82%	6.82%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**34.85%**	**33.65%**	**39.78%**	**29.52%**	**33.89%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**34.90%**	**33.70%**	**39.83%**	**29.52%**	**33.89%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dunes City

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$100,736	$57,662
Allocated pre-SLGRP pooled liability/(surplus)	(5,516)	(4,220)
Transition liability/(surplus)	24,085	29,208
Allocated pooled OPSRP UAL	8,386	4,555
Side account	0	0
Net unfunded pension actuarial accrued liability	127,691	87,205
Combined valuation payroll	46,441	30,226
Net pension UAL as a percentage of payroll	275%	289%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	6.82%	11.63%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($681)	($346)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$29,208
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	12.22%
B. Actual employer payroll	30,271
C. Payment to transition liability/(surplus)	3,699
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	12.22%
B. Actual employer payroll	24,890
C. Payment to transition liability/(surplus)	3,042
4. Supplemental payment to transition liability	0
5. Interest	1,618
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$24,085**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	24,085	29,208
2. Combined valuation payroll	46,441	30,226
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**6.82%**	**11.63%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	46,441	30,226
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Yachats/2300
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Yachats/2300

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yachats -- #2300

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yachats to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yachats.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Yachats

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.12%)	(6.12%)	(6.12%)	(6.12%)	(6.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.70%**	**24.70%**	**28.40%**	**18.14%**	**22.51%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.75%**	**24.75%**	**28.45%**	**18.14%**	**22.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yachats

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,213,941	$773,431
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(260,680)	(272,854)
Allocated pooled OPSRP UAL	101,051	61,095
Side account	0	0
Net unfunded pension actuarial accrued liability	1,054,312	561,672
Combined valuation payroll	559,641	405,432
Net pension UAL as a percentage of payroll	188%	139%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.12%)	(8.10%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,203)	($4,646)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$148,862	$25,321	17.17%	$143,276	$24,600
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**148,862**	**25,321**		**143,276**	**24,600**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$148,862**	**$25,321**		**$143,276**	**$24,600**
Total normal cost rate						
General Service			**17.01%**			**17.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**17.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($272,854)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(5.82%)
B. Actual employer payroll	238,087
C. Payment to transition liability/(surplus)	(13,857)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(5.82%)
B. Actual employer payroll	271,899
C. Payment to transition liability/(surplus)	(15,825)
4. Supplemental payment to transition liability	0
5. Interest	(17,508)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($260,680)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(260,680)	(272,854)
2. Combined valuation payroll	559,641	405,432
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.12%)**	**(8.10%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	559,641	405,432
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Moro/2301
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Moro/2301

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Moro -- #2301

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Moro to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Moro.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Moro

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.12%)	(11.12%)	(11.12%)	(11.12%)	(11.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**18.47%**	**17.27%**	**23.40%**	**13.14%**	**17.51%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.52%**	**17.32%**	**23.45%**	**13.14%**	**17.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Moro

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$208,345	$151,160
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(81,215)	(82,935)
Allocated pooled OPSRP UAL	17,343	11,940
Side account	0	0
Net unfunded pension actuarial accrued liability	144,473	80,165
Combined valuation payroll	96,049	79,238
Net pension UAL as a percentage of payroll	150%	101%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.12%)	(12.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,408)	($908)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($82,935)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(9.38%)
B. Actual employer payroll	29,276
C. Payment to transition liability/(surplus)	(2,746)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(9.38%)
B. Actual employer payroll	47,212
C. Payment to transition liability/(surplus)	(4,429)
4. Supplemental payment to transition liability	0
5. Interest	(5,455)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($81,215)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(81,215)	(82,935)
2. Combined valuation payroll	96,049	79,238
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(11.12%)**	**(12.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	96,049	79,238
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Mt. Vernon/2302
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Mt. Vernon/2302

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Mt. Vernon/2302

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mt Vernon -- #2302

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mt. Vernon to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mt. Vernon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Mt. Vernon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.87%)	(6.87%)	(6.87%)	(6.87%)	(6.87%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**23.95%**	**23.95%**	**27.65%**	**17.39%**	**21.76%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.00%**	**24.00%**	**27.70%**	**17.39%**	**21.76%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Mt. Vernon

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$349,320	$228,741
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(84,186)	(89,093)
Allocated pooled OPSRP UAL	29,078	18,069
Side account	0	0
Net unfunded pension actuarial accrued liability	294,212	157,717
Combined valuation payroll	161,040	119,906
Net pension UAL as a percentage of payroll	183%	132%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.87%)	(8.94%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,360)	($1,374)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer’s combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$70,988	$12,075	17.17%	$69,632	$11,956
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**70,988**	**12,075**		**69,632**	**11,956**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$70,988**	**$12,075**		**$69,632**	**$11,956**
Total normal cost rate						
General Service			**17.01%**			**17.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**17.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($89,093)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(6.89%)
B. Actual employer payroll	74,224
C. Payment to transition liability/(surplus)	(5,114)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(6.89%)
B. Actual employer payroll	79,054
C. Payment to transition liability/(surplus)	(5,447)
4. Supplemental payment to transition liability	0
5. Interest	(5,654)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($84,186)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(84,186)	(89,093)
2. Combined valuation payroll	161,040	119,906
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.87%)**	**(8.94%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	161,040	119,906
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Woodburn/2303
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Woodburn/2303

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of Woodburn/2303

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Woodburn -- #2303

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Woodburn to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Woodburn.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Woodburn

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.41%	14.38%	20.58%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(2.24%)	(2.24%)	(2.24%)	(2.24%)	(2.24%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.42%**	**24.39%**	**30.59%**	**20.46%**	**24.83%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.47%**	**24.44%**	**30.64%**	**20.46%**	**24.83%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Woodburn

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$19,026,301	$15,588,808
Allocated pre-SLGRP pooled liability/(surplus)	(1,041,786)	(1,140,968)
Transition liability/(surplus)	(1,496,792)	(1,564,018)
Allocated pooled OPSRP UAL	1,583,787	1,231,394
Side account	0	0
Net unfunded pension actuarial accrued liability	18,071,510	14,115,216
Combined valuation payroll	8,771,340	8,171,642
Net pension UAL as a percentage of payroll	206%	173%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(2.24%)	(2.30%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($128,568)	($93,632)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$863,585	$146,896	17.17%	$793,225	$136,197
Tier 2 General Service	12.84%	1,477,963	189,770	12.64%	1,446,284	182,810
Total General Service		**2,341,548**	**336,666**		**2,239,509**	**319,007**
Tier 1 Police & Fire	22.20%	302,075	67,061	22.26%	294,662	65,592
Tier 2 Police & Fire	20.00%	836,076	167,215	20.05%	756,777	151,734
Total Police & Fire		**1,138,151**	**234,276**		**1,051,439**	**217,326**
Total		**$3,479,699**	**$570,942**		**$3,290,948**	**$536,333**
Total normal cost rate						
General Service			**14.38%**			**14.24%**
Police & Fire			**20.58%**			**20.67%**
Aggregate (Default)			**16.41%**			**16.30%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,564,018)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(2.04%)
B. Actual employer payroll	4,095,957
C. Payment to transition liability/(surplus)	(83,558)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(2.04%)
B. Actual employer payroll	4,127,431
C. Payment to transition liability/(surplus)	(84,199)
4. Supplemental payment to transition liability	0
5. Interest	(100,531)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,496,792)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,496,792)	(1,564,018)
2. Combined valuation payroll	8,771,340	8,171,642
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(2.24%)**	**(2.30%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	8,771,340	8,171,642
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Gladstone/2304
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
City of Gladstone/2304

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Gladstone/2304

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gladstone -- #2304

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gladstone to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gladstone.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Gladstone

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.59%	14.79%	20.54%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.28%)	(4.28%)	(4.28%)	(4.28%)	(4.28%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.12%**	**24.32%**	**30.07%**	**19.98%**	**24.35%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.17%**	**24.37%**	**30.12%**	**19.98%**	**24.35%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gladstone

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$7,515,786	$6,722,828
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,127,736)	(1,256,438)
Allocated pooled OPSRP UAL	625,629	531,051
Side account	0	0
Net unfunded pension actuarial accrued liability	7,013,679	5,997,441
Combined valuation payroll	3,464,862	3,524,102
Net pension UAL as a percentage of payroll	202%	170%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.28%)	(4.29%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($50,787)	($40,380)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$404,020	$68,724	17.17%	$466,542	$80,105
Tier 2 General Service	12.84%	459,521	59,002	12.64%	421,518	53,280
Total General Service		**863,541**	**127,726**		**888,060**	**133,385**
Tier 1 Police & Fire	22.20%	96,164	21,348	22.26%	330,584	73,588
Tier 2 Police & Fire	20.00%	298,126	59,625	20.05%	442,037	88,628
Total Police & Fire		**394,290**	**80,973**		**772,621**	**162,216**
Total		**$1,257,831**	**$208,699**		**$1,660,681**	**$295,601**
Total normal cost rate						
General Service			**14.79%**			**15.02%**
Police & Fire			**20.54%**			**21.00%**
Aggregate (Default)			**16.59%**			**17.80%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,256,438)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,788,979
C. Payment to transition liability/(surplus)	(102,866)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,766,597
C. Payment to transition liability/(surplus)	(101,579)
4. Supplemental payment to transition liability	0
5. Interest	(75,743)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,127,736)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,127,736)	(1,256,438)
2. Combined valuation payroll	3,464,862	3,524,102
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.28%)**	**(4.29%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,464,862	3,524,102
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Elkton/2305
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Elkton/2305

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman’s prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman’s consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Elkton -- #2305

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Elkton to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Elkton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Elkton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.08%	0.08%	0.08%	0.08%	0.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**25.17%**	**25.17%**	**33.04%**	**22.78%**	**27.15%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.22%**	**25.22%**	**33.09%**	**22.78%**	**27.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Elkton

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$87,447	$76,717
Allocated pre-SLGRP pooled liability/(surplus)	(4,788)	(5,615)
Transition liability/(surplus)	244	255
Allocated pooled OPSRP UAL	7,279	6,060
Side account	0	0
Net unfunded pension actuarial accrued liability	90,182	77,417
Combined valuation payroll	40,314	40,215
Net pension UAL as a percentage of payroll	224%	193%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.08%	0.08%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($591)	($461)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	40,314	5,176	12.64%	40,215	5,083
Total General Service		**40,314**	**5,176**		**40,215**	**5,083**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$40,314**	**$5,176**		**$40,215**	**$5,083**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$255
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.07%
B. Actual employer payroll	18,975
C. Payment to transition liability/(surplus)	13
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.07%
B. Actual employer payroll	19,958
C. Payment to transition liability/(surplus)	14
4. Supplemental payment to transition liability	0
5. Interest	16
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$244**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	244	255
2. Combined valuation payroll	40,314	40,215
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**0.08%**	**0.08%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	40,314	40,215
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Imbler/2306
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Imbler/2306

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Imbler -- #2306

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Imbler to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Imbler.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Imbler

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.12%	0.12%	0.12%	0.12%	0.12%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**28.15%**	**26.95%**	**33.08%**	**22.82%**	**27.19%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.20%**	**27.00%**	**33.13%**	**22.82%**	**27.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Imbler

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$45,260	$22,759
Allocated pre-SLGRP pooled liability/(surplus)	(2,478)	(1,666)
Transition liability/(surplus)	195	193
Allocated pooled OPSRP UAL	3,768	1,798
Side account	0	0
Net unfunded pension actuarial accrued liability	46,745	23,084
Combined valuation payroll	20,865	11,930
Net pension UAL as a percentage of payroll	224%	194%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.12%	0.19%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($306)	($137)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$193
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.16%
B. Actual employer payroll	3,800
C. Payment to transition liability/(surplus)	6
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.16%
B. Actual employer payroll	3,244
C. Payment to transition liability/(surplus)	5
4. Supplemental payment to transition liability	0
5. Interest	13
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$195**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	195	193
2. Combined valuation payroll	20,865	11,930
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**0.12%**	**0.19%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	20,865	11,930
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of Yoncalla/2307
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
City of Yoncalla/2307

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yoncalla -- #2307

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yoncalla to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yoncalla.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of Yoncalla

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.52%)	(0.52%)	(0.52%)	(0.52%)	(0.52%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**24.57%**	**24.57%**	**32.44%**	**22.18%**	**26.55%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.62%**	**24.62%**	**32.49%**	**22.18%**	**26.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yoncalla

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$297,843	$354,175
Allocated pre-SLGRP pooled liability/(surplus)	(16,308)	(25,923)
Transition liability/(surplus)	(5,443)	(5,809)
Allocated pooled OPSRP UAL	24,793	27,977
Side account	0	0
Net unfunded pension actuarial accrued liability	300,885	350,420
Combined valuation payroll	137,309	185,658
Net pension UAL as a percentage of payroll	219%	189%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.52%)	(0.38%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,013)	($2,127)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	41,225	5,293	12.64%	86,855	10,978
Total General Service		**41,225**	**5,293**		**86,855**	**10,978**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$41,225**	**$5,293**		**$86,855**	**$10,978**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($5,809)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	96,938
C. Payment to transition liability/(surplus)	(378)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	90,603
C. Payment to transition liability/(surplus)	(354)
4. Supplemental payment to transition liability	0
5. Interest	(366)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,443)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(5,443)	(5,809)
2. Combined valuation payroll	137,309	185,658
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.52%)**	**(0.38%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	137,309	185,658
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

City of North Powder/2308
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
City of North Powder/2308

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Powder -- #2308

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Powder to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Powder.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for City of North Powder

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.52%)	(3.52%)	(3.52%)	(3.52%)	(3.52%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**23.13%**	**23.13%**	**31.00%**	**20.74%**	**25.11%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.18%**	**23.18%**	**31.05%**	**20.74%**	**25.11%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Powder

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$138,842	$145,771
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(17,156)	(18,061)
Allocated pooled OPSRP UAL	11,557	11,515
Side account	0	0
Net unfunded pension actuarial accrued liability	133,243	139,225
Combined valuation payroll	64,008	76,413
Net pension UAL as a percentage of payroll	208%	182%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.52%)	(2.84%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($938)	($876)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	38,484	4,941	12.64%	34,605	4,374
Total General Service		**38,484**	**4,941**		**34,605**	**4,374**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$38,484**	**$4,941**		**$34,605**	**$4,374**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($18,061)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.28%)
B. Actual employer payroll	30,871
C. Payment to transition liability/(surplus)	(1,013)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.28%)
B. Actual employer payroll	31,840
C. Payment to transition liability/(surplus)	(1,044)
4. Supplemental payment to transition liability	0
5. Interest	(1,152)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($17,156)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(17,156)	(18,061)
2. Combined valuation payroll	64,008	76,413
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(3.52%)**	**(2.84%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	64,008	76,413
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Port of The Dalles/2501
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Port of The Dalles/2501

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Port of The Dalles -- #2501

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Port of The Dalles to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Port of The Dalles.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Port of The Dalles

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(13.82%)	(13.82%)	(13.82%)	(13.82%)	(13.82%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**11.27%**	**11.27%**	**19.14%**	**8.88%**	**13.25%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**11.32%**	**11.32%**	**19.19%**	**8.88%**	**13.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Port of The Dalles

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$423,318	$433,797
Allocated pre-SLGRP pooled liability/(surplus)	(23,179)	(31,750)
Transition liability/(surplus)	(205,184)	(214,704)
Allocated pooled OPSRP UAL	35,238	34,267
Side account	0	0
Net unfunded pension actuarial accrued liability	230,193	221,610
Combined valuation payroll	195,154	227,396
Net pension UAL as a percentage of payroll	118%	97%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(13.82%)	(11.36%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,861)	($2,606)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$32,593	$5,596
Tier 2 General Service	12.84%	103,790	13,327	12.64%	103,790	13,119
Total General Service		**103,790**	**13,327**		**136,383**	**18,715**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$103,790**	**$13,327**		**$136,383**	**$18,715**
Total normal cost rate						
General Service			**12.84%**			**13.72%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**13.72%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($214,704)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(11.22%)
B. Actual employer payroll	109,010
C. Payment to transition liability/(surplus)	(12,231)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(11.22%)
B. Actual employer payroll	98,662
C. Payment to transition liability/(surplus)	(11,070)
4. Supplemental payment to transition liability	0
5. Interest	(13,781)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($205,184)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(205,184)	(214,704)
2. Combined valuation payroll	195,154	227,396
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(13.82%)**	**(11.36%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	195,154	227,396
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Multnomah Drainage/2508
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Multnomah Drainage/2508

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Multnomah Drainage -- #2508

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Multnomah Drainage to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Multnomah Drainage.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Multnomah Drainage

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	1.16%	1.16%	1.16%	1.16%	1.16%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.25%**	**26.25%**	**34.12%**	**23.86%**	**28.23%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.30%**	**26.30%**	**34.17%**	**23.86%**	**28.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Multnomah Drainage

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$4,163,994	$3,524,597
Allocated pre-SLGRP pooled liability/(surplus)	(228,000)	(257,971)
Transition liability/(surplus)	169,731	193,418
Allocated pooled OPSRP UAL	346,619	278,416
Side account	0	0
Net unfunded pension actuarial accrued liability	4,452,344	3,738,460
Combined valuation payroll	1,919,648	1,847,591
Net pension UAL as a percentage of payroll	232%	202%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	1.16%	1.26%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($28,138)	($21,170)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$71,047	$12,199
Tier 2 General Service	12.84%	401,404	51,540	12.64%	325,493	41,142
Total General Service		**401,404**	**51,540**		**396,540**	**53,341**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$401,404**	**$51,540**		**$396,540**	**$53,341**
Total normal cost rate						
General Service			**12.84%**			**13.45%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**13.45%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$193,418
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	1.77%
B. Actual employer payroll	941,659
C. Payment to transition liability/(surplus)	16,667
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	1.77%
B. Actual employer payroll	1,040,668
C. Payment to transition liability/(surplus)	18,420
4. Supplemental payment to transition liability	0
5. Interest	11,400
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$169,731**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	169,731	193,418
2. Combined valuation payroll	1,919,648	1,847,591
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.16%**	**1.26%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	1,919,648	1,847,591
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Horsefly Irrigation District/2510
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Horsefly Irrigation District/2510

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Horsefly Irrigation District -- #2510

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Horsefly Irrigation District to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Horsefly Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Horsefly Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	1.54%	1.54%	1.54%	1.54%	1.54%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**31.13%**	**29.93%**	**36.06%**	**25.80%**	**30.17%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.18%**	**29.98%**	**36.11%**	**25.80%**	**30.17%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Horsefly Irrigation District

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$225,232	$47,465
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	12,144	16,254
Allocated pooled OPSRP UAL	18,749	3,749
Side account	0	0
Net unfunded pension actuarial accrued liability	256,125	67,468
Combined valuation payroll	103,834	24,881
Net pension UAL as a percentage of payroll	247%	271%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	1.54%	7.86%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,522)	($285)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$16,254
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	6.96%
B. Actual employer payroll	28,288
C. Payment to transition liability/(surplus)	1,969
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	6.96%
B. Actual employer payroll	42,495
C. Payment to transition liability/(surplus)	2,957
4. Supplemental payment to transition liability	0
5. Interest	816
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$12,144**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	12,144	16,254
2. Combined valuation payroll	103,834	24,881
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.54%**	**7.86%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	103,834	24,881
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Grants Pass Irrigation District/2511
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Grants Pass Irrigation District/2511

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Grants Pass Irrigation District -- #2511

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Grants Pass Irrigation District to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Grants Pass Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Grants Pass Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	1.24%	1.24%	1.24%	1.24%	1.24%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**29.27%**	**28.07%**	**34.20%**	**23.94%**	**28.31%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.32%**	**28.12%**	**34.25%**	**23.94%**	**28.31%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Grants Pass Irrigation District

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$912,274	$1,013,373
Allocated pre-SLGRP pooled liability/(surplus)	(49,952)	(74,170)
Transition liability/(surplus)	39,568	41,800
Allocated pooled OPSRP UAL	75,939	80,049
Side account	0	0
Net unfunded pension actuarial accrued liability	977,829	1,061,052
Combined valuation payroll	420,569	531,210
Net pension UAL as a percentage of payroll	233%	200%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	1.24%	0.95%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,165)	($6,087)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$33,992	$5,836
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**33,992**	**5,836**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$33,992**	**$5,836**
Total normal cost rate						
General Service			**14.58%**			**17.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**17.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$41,800
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	1.00%
B. Actual employer payroll	259,301
C. Payment to transition liability/(surplus)	2,593
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	1.00%
B. Actual employer payroll	229,728
C. Payment to transition liability/(surplus)	2,297
4. Supplemental payment to transition liability	0
5. Interest	2,658
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$39,568**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	39,568	41,800
2. Combined valuation payroll	420,569	531,210
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.24%**	**0.95%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	420,569	531,210
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Port of Portland/2512
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
Port of Portland/2512

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Port of Portland/2512

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Port of Portland -- #2512

December 2019

Secondary Employers

2151 Portland Dock Commission

CONTENTS

Executive Summary

Milliman has prepared this report for Port of Portland to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Port of Portland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Port of Portland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.56%	14.26%	20.55%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(0.13%)	(0.13%)	(0.13%)	(0.13%)	(0.13%)
Side account rate relief [2]	(5.10%)	(5.10%)	(5.10%)	(5.10%)	(5.10%)
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**22.58%**	**21.28%**	**27.57%**	**17.47%**	**21.84%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.63%**	**21.33%**	**27.62%**	**17.47%**	**21.84%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Port of Portland

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$156,868,475	$130,671,012
Allocated pre-SLGRP pooled liability/(surplus)	(8,589,342)	(9,564,007)
Transition liability/(surplus)	(690,332)	(735,927)
Allocated pooled OPSRP UAL	13,058,046	10,321,988
Side account	28,074,530	31,463,686
Net unfunded pension actuarial accrued liability	132,572,317	99,229,380
Combined valuation payroll	72,318,143	68,497,652
Net pension UAL as a percentage of payroll	183%	145%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(0.13%)	(0.13%)
Side account rate relief	(5.10%)	(5.53%)
Allocated pooled RHIA UAL	($1,060,024)	($784,859)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$7,566,924	$1,287,134	17.17%	$8,585,610	$1,474,149
Tier 2 General Service	12.84%	14,649,254	1,880,964	12.64%	15,176,151	1,918,265
Total General Service		**22,216,178**	**3,168,098**		**23,761,761**	**3,392,414**
Tier 1 Police & Fire	22.20%	1,443,724	320,507	22.26%	1,823,419	405,893
Tier 2 Police & Fire	20.00%	4,351,891	870,378	20.05%	4,111,815	824,419
Total Police & Fire		**5,795,615**	**1,190,885**		**5,935,234**	**1,230,312**
Total		**$28,011,793**	**$4,358,983**		**$29,696,995**	**$4,622,726**
Total normal cost rate						
General Service			**14.26%**			**14.28%**
Police & Fire			**20.55%**			**20.73%**
Aggregate (Default)			**15.56%**			**15.57%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($735,927)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(0.13%)
B. Actual employer payroll	34,539,304
C. Payment to transition liability/(surplus)	(44,901)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(0.13%)
B. Actual employer payroll	36,199,764
C. Payment to transition liability/(surplus)	(47,060)
4. Supplemental payment to transition liability	0
5. Interest	(46,366)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($690,332)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(690,332)	(735,927)
2. Combined valuation payroll	72,318,143	68,497,652
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(0.13%)**	**(0.13%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**	**$31,463,686**	**$31,463,686**
2. Deposits during 2018			
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2018		(3,581,503)	(3,581,503)
5. Side account earnings during 2018		193,347	193,347
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***		**$28,074,530**	**$28,074,530**

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	$14,250,343	$15,971,527
Side Account 2	13,824,187	15,492,160
Side Account 3	0	0
Total	**$28,074,530**	**$31,463,686**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$28,074,530	$31,463,686
2. Combined valuation payroll	72,318,143	68,497,652
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(5.10%)	(5.53%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Port of Coos Bay/2513
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Port of Coos Bay/2513

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Port of Coos Bay -- #2513

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Port of Coos Bay to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Port of Coos Bay.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Port of Coos Bay

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.16%	15.16%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.05%)	(1.05%)	(1.05%)	(1.05%)	(1.05%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.92%**	**27.92%**	**33.47%**	**23.21%**	**27.58%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.97%**	**27.97%**	**33.52%**	**23.21%**	**27.58%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

[3] *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Port of Coos Bay

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$4,370,209	$3,762,053
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(160,648)	(183,972)
Allocated pooled OPSRP UAL	363,785	297,173
Side account	0	0
Net unfunded pension actuarial accrued liability	4,573,346	3,875,254
Combined valuation payroll	2,014,716	1,972,066
Net pension UAL as a percentage of payroll	227%	197%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.05%)	(1.12%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($29,531)	($22,596)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$130,359	$22,174	17.17%	$131,712	$22,615
Tier 2 General Service	12.84%	103,759	13,323	12.64%	100,148	12,659
Total General Service		**234,118**	**35,497**		**231,860**	**35,274**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$234,118**	**$35,497**		**$231,860**	**$35,274**
Total normal cost rate						
General Service			**15.16%**			**15.21%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.16%**			**15.21%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($183,972)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(1.75%)
B. Actual employer payroll	1,004,857
C. Payment to transition liability/(surplus)	(17,585)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(1.75%)
B. Actual employer payroll	944,533
C. Payment to transition liability/(surplus)	(16,529)
4. Supplemental payment to transition liability	0
5. Interest	(10,790)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($160,648)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(160,648)	(183,972)
2. Combined valuation payroll	2,014,716	1,972,066
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.05%)**	**(1.12%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	2,014,716	1,972,066
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Home Forward/2519
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
Home Forward/2519

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Home Forward/2519

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Home Forward -- #2519

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Home Forward to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Home Forward.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Home Forward

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.06%	14.06%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.96%)	(4.96%)	(4.96%)	(4.96%)	(4.96%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**22.91%**	**22.91%**	**29.56%**	**19.30%**	**23.67%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.96%**	**22.96%**	**29.61%**	**19.30%**	**23.67%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Home Forward

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$34,258,329	$27,498,669
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(5,958,391)	(6,294,153)
Allocated pooled OPSRP UAL	2,851,732	2,172,180
Side account	0	0
Net unfunded pension actuarial accrued liability	31,151,670	23,376,696
Combined valuation payroll	15,793,477	14,414,783
Net pension UAL as a percentage of payroll	197%	162%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.96%)	(5.25%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($231,497)	($165,167)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$1,551,059	$263,835	17.17%	$1,738,334	$298,472
Tier 2 General Service	12.84%	3,732,455	479,247	12.64%	3,778,946	477,659
Total General Service		**5,283,514**	**743,082**		**5,517,280**	**776,131**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$5,283,514**	**$743,082**		**$5,517,280**	**$776,131**
Total normal cost rate						
General Service			**14.06%**			**14.07%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**14.06%**			**14.07%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($6,294,153)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate [1]	(4.81%)
B. Actual employer payroll	7,348,419
C. Payment to transition liability/(surplus)	(353,459)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate [1]	(4.81%)
B. Actual employer payroll	7,952,046
C. Payment to transition liability/(surplus)	(382,493)
4. Supplemental payment to transition liability	0
5. Interest	(400,190)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,958,391)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(5,958,391)	(6,294,153)
2. Combined valuation payroll	15,793,477	14,414,783
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(4.96%)**	**(5.25%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	15,793,477	14,414,783
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Lane Council of Governments/2522
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
Lane Council of Governments/2522

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Lane Council of Governments/2522

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Lane Council of Governments -- #2522

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Lane Council of Governments to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Lane Council of Governments.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Lane Council of Governments

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.16%	15.16%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.30%)	(1.30%)	(1.30%)	(1.30%)	(1.30%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**27.67%**	**27.67%**	**33.22%**	**22.96%**	**27.33%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.72%**	**27.72%**	**33.27%**	**22.96%**	**27.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Lane Council of Governments

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$26,805,767	$21,146,374
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,220,869)	(1,330,982)
Allocated pooled OPSRP UAL	2,231,366	1,670,398
Side account	0	0
Net unfunded pension actuarial accrued liability	27,816,264	21,485,790
Combined valuation payroll	12,357,762	11,084,914
Net pension UAL as a percentage of payroll	225%	194%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.30%)	(1.44%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($181,137)	($127,013)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$1,721,912	$292,897	17.17%	$1,860,771	$319,494
Tier 2 General Service	12.84%	1,371,736	176,131	12.64%	1,630,667	206,116
Total General Service		**3,093,648**	**469,028**		**3,491,438**	**525,610**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$3,093,648**	**$469,028**		**$3,491,438**	**$525,610**
Total normal cost rate						
General Service			**15.16%**			**15.05%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.16%**			**15.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($1,330,982)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(1.64%)
B. Actual employer payroll	5,712,718
C. Payment to transition liability/(surplus)	(93,689)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(1.64%)
B. Actual employer payroll	6,001,436
C. Payment to transition liability/(surplus)	(98,423)
4. Supplemental payment to transition liability	0
5. Interest	(81,999)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,220,869)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(1,220,869)	(1,330,982)
2. Combined valuation payroll	12,357,762	11,084,914
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(1.30%)**	**(1.44%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	12,357,762	11,084,914
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Clatskanie PUD/2526
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Clatskanie PUD/2526

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie PUD -- #2526

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie PUD to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie PUD.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Clatskanie PUD

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.99%	13.99%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.24%**	**26.24%**	**32.96%**	**22.70%**	**27.07%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.29%**	**26.29%**	**33.01%**	**22.70%**	**27.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie PUD

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$7,322,259	$7,178,070
Allocated pre-SLGRP pooled liability/(surplus)	(400,931)	(525,374)
Transition liability/(surplus)	0	1,671,074
Allocated pooled OPSRP UAL	609,520	567,011
Side account	0	0
Net unfunded pension actuarial accrued liability	7,530,848	8,890,781
Combined valuation payroll	3,375,644	3,762,739
Net pension UAL as a percentage of payroll	223%	236%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	0.00%	5.34%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($49,479)	($43,114)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$142,099	$24,171	17.17%	$397,123	$68,186
Tier 2 General Service	12.84%	371,059	47,644	12.64%	404,684	51,152
Total General Service		**513,158**	**71,815**		**801,807**	**119,338**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$513,158**	**$71,815**		**$801,807**	**$119,338**
Total normal cost rate						
General Service			**13.99%**			**14.88%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**13.99%**			**14.88%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$1,671,074
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	5.71%
B. Actual employer payroll	1,847,707
C. Payment to transition liability/(surplus)	105,504
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	5.71%
B. Actual employer payroll	1,713,790
C. Payment to transition liability/(surplus)	16,413
4. Supplemental payment to transition liability	1,628,470
5. Interest	79,313
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	0	1,671,074
2. Combined valuation payroll	3,375,644	3,762,739
3. Regular amortization factor	0.000	8.312
4. **Total transition liability/(surplus) rate**	**0.00%**	**5.34%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,375,644	3,762,739
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Columbia River Fire & Rescue/2528
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
Columbia River Fire & Rescue/2528

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Columbia River Fire & Rescue/2528

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia River Fire & Rescue -- #2528

December 2019

Secondary Employers

2577 Rainier Fire Department

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia River Fire & Rescue to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia River Fire & Rescue.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Columbia River Fire & Rescue

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.60%	14.58%	20.60%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(6.34%)	(6.34%)	(6.34%)	(6.34%)	(6.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.51%**	**20.49%**	**26.51%**	**16.36%**	**20.73%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.56%**	**20.54%**	**26.56%**	**16.36%**	**20.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia River Fire & Rescue

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$9,860,287	$8,533,336
Allocated pre-SLGRP pooled liability/(surplus)	(539,901)	(624,568)
Transition liability/(surplus)	(2,191,408)	(2,337,248)
Allocated pooled OPSRP UAL	820,790	674,067
Side account	0	0
Net unfunded pension actuarial accrued liability	7,949,768	6,245,587
Combined valuation payroll	4,545,704	4,473,168
Net pension UAL as a percentage of payroll	175%	140%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(6.34%)	(6.29%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($66,630)	($51,254)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	84,381	10,666
Total General Service		**0**	**0**		**84,381**	**10,666**
Tier 1 Police & Fire	22.20%	582,223	129,254	22.26%	693,691	154,416
Tier 2 Police & Fire	20.00%	1,565,194	313,039	20.05%	1,590,538	318,903
Total Police & Fire		**2,147,417**	**442,293**		**2,284,229**	**473,319**
Total		**$2,147,417**	**$442,293**		**$2,368,610**	**$483,985**
Total normal cost rate						
General Service			**14.58%**			**12.64%**
Police & Fire			**20.60%**			**20.72%**
Aggregate (Default)			**20.60%**			**20.43%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($2,337,248)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(6.67%)
B. Actual employer payroll	2,050,002
C. Payment to transition liability/(surplus)	(136,735)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(6.67%)
B. Actual employer payroll	2,343,171
C. Payment to transition liability/(surplus)	(156,289)
4. Supplemental payment to transition liability	0
5. Interest	(147,184)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,191,408)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(2,191,408)	(2,337,248)
2. Combined valuation payroll	4,545,704	4,473,168
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.34%)**	**(6.29%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	4,545,704	4,473,168
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Oregon School Boards Association/2531
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Oregon School Boards Association/2531

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Oregon School Boards Association -- #2531

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Oregon School Boards Association to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Oregon School Boards Association.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Oregon School Boards Association

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.42%	15.42%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.08%	0.08%	0.08%	0.08%	0.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**29.31%**	**29.31%**	**34.60%**	**24.34%**	**28.71%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.36%**	**29.36%**	**34.65%**	**24.34%**	**28.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Oregon School Boards Association

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$8,011,298	$5,531,834
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	22,838	24,543
Allocated pooled OPSRP UAL	666,877	436,972
Side account	0	0
Net unfunded pension actuarial accrued liability	8,701,013	5,993,349
Combined valuation payroll	3,693,299	2,899,783
Net pension UAL as a percentage of payroll	236%	207%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.08%	0.10%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($54,136)	($33,226)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$914,981	$155,638	17.17%	$971,679	$166,837
Tier 2 General Service	12.84%	564,030	72,421	12.64%	318,554	40,265
Total General Service		**1,479,011**	**228,059**		**1,290,233**	**207,102**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,479,011**	**$228,059**		**$1,290,233**	**$207,102**
Total normal cost rate						
General Service			**15.42%**			**16.05%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.42%**			**16.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$24,543
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	0.10%
B. Actual employer payroll	1,507,977
C. Payment to transition liability/(surplus)	1,508
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	0.10%
B. Actual employer payroll	1,730,816
C. Payment to transition liability/(surplus)	1,731
4. Supplemental payment to transition liability	0
5. Interest	1,534
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$22,838**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	22,838	24,543
2. Combined valuation payroll	3,693,299	2,899,783
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**0.08%**	**0.10%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	3,693,299	2,899,783
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	\$8.0 million, added to OPSRP normal cost. \$32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Clackamas Vector Control/2538
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

December 2019
Clackamas Vector Control/2538

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Clackamas Vector Control/2538

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas Vector Control -- #2538

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas Vector Control to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas Vector Control.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Clackamas Vector Control

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	3.08%	3.08%	3.08%	3.08%	3.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**31.11%**	**29.91%**	**36.04%**	**25.78%**	**30.15%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.16%**	**29.96%**	**36.09%**	**25.78%**	**30.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas Vector Control

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$678,512	$595,565
Allocated pre-SLGRP pooled liability/(surplus)	(37,152)	(43,590)
Transition liability/(surplus)	73,383	82,227
Allocated pooled OPSRP UAL	56,481	47,045
Side account	0	0
Net unfunded pension actuarial accrued liability	771,224	681,247
Combined valuation payroll	312,802	312,195
Net pension UAL as a percentage of payroll	247%	218%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	3.08%	3.17%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,585)	($3,577)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$82,227
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	5.49%
B. Actual employer payroll	128,928
C. Payment to transition liability/(surplus)	7,078
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	5.49%
B. Actual employer payroll	121,943
C. Payment to transition liability/(surplus)	6,695
4. Supplemental payment to transition liability	0
5. Interest	4,929
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$73,383**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	73,383	82,227
2. Combined valuation payroll	312,802	312,195
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**3.08%**	**3.17%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	312,802	312,195
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

West Extension Irrigation District/2540
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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December 2019
West Extension Irrigation District/2540

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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December 2019
West Extension Irrigation District/2540

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

West Extension Irrigation District -- #2540

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for West Extension Irrigation District to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to West Extension Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for West Extension Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.84%	12.84%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	(6.10%)	(6.10%)	(6.10%)	(6.10%)	(6.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**18.99%**	**18.99%**	**26.86%**	**16.60%**	**20.97%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.04%**	**19.04%**	**26.91%**	**16.60%**	**20.97%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

West Extension Irrigation District

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$730,297	$664,780
Allocated pre-SLGRP pooled liability/(surplus)	(39,987)	(48,656)
Transition liability/(surplus)	(156,167)	(176,449)
Allocated pooled OPSRP UAL	60,791	52,512
Side account	0	0
Net unfunded pension actuarial accrued liability	594,934	492,187
Combined valuation payroll	336,675	348,477
Net pension UAL as a percentage of payroll	177%	141%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	(6.10%)	(6.09%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,935)	($3,993)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) **RHIPA**	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	98,275	12,619	12.64%	166,137	21,000
Total General Service		**98,275**	**12,619**		**166,137**	**21,000**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$98,275**	**$12,619**		**$166,137**	**$21,000**
Total normal cost rate						
General Service			**12.84%**			**12.64%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**12.84%**			**12.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($176,449)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(7.47%)
B. Actual employer payroll	211,904
C. Payment to transition liability/(surplus)	(15,829)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(7.47%)
B. Actual employer payroll	200,024
C. Payment to transition liability/(surplus)	(14,942)
4. Supplemental payment to transition liability	0
5. Interest	(10,489)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($156,167)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(156,167)	(176,449)
2. Combined valuation payroll	336,675	348,477
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(6.10%)**	**(6.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	336,675	348,477
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Jackson County Vector Control District/2541
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

December 2019
Jackson County Vector Control District/2541

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Jackson County Vector Control District -- #2541

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Jackson County Vector Control District to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Jackson County Vector Control District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Jackson County Vector Control District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.78%	14.58%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.32%)	(3.32%)	(3.32%)	(3.32%)	(3.32%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**26.27%**	**25.07%**	**31.20%**	**20.94%**	**25.31%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.32%**	**25.12%**	**31.25%**	**20.94%**	**25.31%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Jackson County Vector Control District

	Actuarial Valuation as of	
	December 31, 2018	December 31, 2017
Allocated pooled SLGRP T1/T2 UAL	$512,694	$361,259
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(59,648)	(63,976)
Allocated pooled OPSRP UAL	42,678	28,537
Side account	0	0
Net unfunded pension actuarial accrued liability	495,724	325,820
Combined valuation payroll	236,358	189,372
Net pension UAL as a percentage of payroll	210%	172%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.32%)	(4.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,464)	($2,170)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2018**	**December 31, 2017**
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2018**	**December 31, 2017**
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$0	$0	17.17%	$0	$0
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Total normal cost rate						
General Service			**14.58%**			**14.62%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**15.78%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	($63,976)
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	(3.66%)
B. Actual employer payroll	110,687
C. Payment to transition liability/(surplus)	(4,051)
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	(3.66%)
B. Actual employer payroll	117,032
C. Payment to transition liability/(surplus)	(4,283)
4. Supplemental payment to transition liability	0
5. Interest	(4,006)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($59,648)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	(59,648)	(63,976)
2. Combined valuation payroll	236,358	189,372
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**(3.32%)**	**(4.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	236,358	189,372
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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December 2019

Rainbow Water District/2542
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2018. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2021 through June 30, 2023 will be calculated in the December 31, 2019 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2018, as modified by Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarialservices@pers.state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions, and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2019.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2021 to June 2023 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

December 2019
Rainbow Water District/2542

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2018

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Rainbow Water District -- #2542

December 2019

CONTENTS

Executive Summary

Milliman has prepared this report for Rainbow Water District to:

- Provide summary December 31, 2018 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide advisory information calculated as of December 31, 2018, on estimated employer-specific contribution rates effective July 1, 2021 through June 30, 2023, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2018.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2018 system-wide valuation report. This report develops advisory employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Rainbow Water District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates calculated as of December 31, 2018 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2021 - 2023 Employer Rates Calculated as of December 31, 2018 for Rainbow Water District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.01%	17.01%	20.71%	8.70%	13.07%
Tier 1/Tier 2 UAL rate[1]	14.50%	14.50%	14.50%	14.50%	14.50%
OPSRP UAL rate	1.76%	1.76%	1.76%	1.76%	1.76%
Pre-SLGRP pooled liability rate	(1.56%)	(1.56%)	(1.56%)	(1.56%)	(1.56%)
Transition liability/(surplus) rate[2]	1.72%	1.72%	1.72%	1.72%	1.72%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Member redirect offset [3]	(2.45%)	(2.45%)	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	**30.98%**	**30.98%**	**34.68%**	**24.42%**	**28.79%**
Retiree Healthcare					
Normal cost rate	0.05%	0.05%	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.05%**	**0.05%**	**0.05%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.03%**	**31.03%**	**34.73%**	**24.42%**	**28.79%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members, and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate and any impact of rate collar developed on page 42 of the system-wide actuarial valuation report.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.*

3 *Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) are anticipated to offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2018 is 68%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68 (GASB 68), which replaced Statement No. 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75 (GASB 75), which replaced Statement No. 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods, or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Rainbow Water District

	Actuarial Valuation as of	
	December 31, 2018	**December 31, 2017**
Allocated pooled SLGRP T1/T2 UAL	$1,379,001	$1,074,412
Allocated pre-SLGRP pooled liability/(surplus)	(75,507)	(78,638)
Transition liability/(surplus)	83,314	90,120
Allocated pooled OPSRP UAL	114,791	84,870
Side account	0	0
Net unfunded pension actuarial accrued liability	1,501,599	1,170,764
Combined valuation payroll	635,735	563,206
Net pension UAL as a percentage of payroll	236%	208%
Pre-SLGRP pooled rate	(1.56%)	(1.68%)
Transition rate	1.72%	1.93%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,318)	($6,453)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$362.9	$381.5
Tier 1/Tier 2 valuation payroll	2,299.5	2,410.6
Normal cost rate	15.78%	15.83%
Actuarial accrued liability	$43,149.3	$42,150.7
Actuarial asset value	29,383.7	30,899.7
Unfunded actuarial accrued liability	13,765.6	11,251.0
Funded status	68%	73%
Combined valuation payroll	$6,346.1	$5,897.8
UAL as a percentage of payroll	217%	191%
UAL rate[1]	14.50%	10.36%
State and Community College Pre-SLGRP Pooled Liability	$448.8	$482.4
LGRP Pooled Liability	(191.8)	(206.0)
Total Transition Liability	(602.7)	(613.0)
Tier 1/Tier 2 Active Members		
▪ Count	28,056	30,397
▪ Average Age	53.8	53.4
▪ Average Service	21.2	20.5
▪ Average Valuation Salary (in dollars)	$81,963	$79,303
Tier 1/Tier 2 Dormant Members		
▪ Count	17,150	18,074
▪ Average Age	56.7	56.2
▪ Average Monthly Benefit (in dollars)	$1,347	$1,346
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	87,579	85,553
▪ Average Age	71.7	71.3
▪ Average Monthly Benefit (in dollars)	$2,313	$2,254

[1] *The December 31, 2018 UAL rate shown for the SLGRP includes 0.14% for Multnomah Fire District #10 (0.15% at December 31, 2017). The City of Portland pays an additional 0.97% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.14% (1.14% and 0.15% respectively at December 31, 2017).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2018**	**December 31, 2017**
General service normal cost	$519.9	$435.7
OPSRP general service valuation payroll	5,973.4	5,187.5
General service normal cost rate	8.70%	8.40%
Police and fire normal cost	$104.9	$86.6
OPSRP police and fire valuation payroll	802.5	664.5
Police and fire normal cost rate	13.07%	13.03%
Actuarial accrued liability	$6,738.0	$5,634.7
Actuarial asset value	4,783.0	4,116.5
Unfunded actuarial accrued liability	1,955.0	1,518.2
Funded status	71%	73%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	18%	15%
UAL rate	1.76%	1.45%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$2.2	$2.5
Tier 1 / Tier 2 valuation payroll	4,076.1	4,246.9
Normal cost rate	0.05%	0.06%
Actuarial accrued liability	$411.7	$437.6
Actuarial asset value	570.7	553.3
Unfunded actuarial accrued liability	(159.1)	(115.7)
Funded status	139%	126%
Combined valuation payroll	$10,852.0	$10,098.9
UAL as a percentage of payroll	(1%)	(1%)
UAL rate	0.00%	0.00%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2018	Actuarial Valuation as of December 31, 2017
Normal cost	$1.3	$1.4
Tier 1 / Tier 2 valuation payroll	1,159.5	1,212.2
Normal cost rate	0.11%	0.12%
Actuarial accrued liability	$62.7	$69.4
Actuarial asset value	38.5	29.8
Unfunded actuarial accrued liability	24.3	39.5
Funded status	61%	43%
Combined valuation payroll	$3,211.6	$2,984.5
UAL as a percentage of payroll	1%	1%
UAL rate	0.22%	0.27%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Total Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2018			December 31, 2017		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.01%	$274,733	$46,732	17.17%	$255,159	$43,811
Tier 2 General Service	12.84%	0	0	12.64%	0	0
Total General Service		**274,733**	**46,732**		**255,159**	**43,811**
Tier 1 Police & Fire	22.20%	0	0	22.26%	0	0
Tier 2 Police & Fire	20.00%	0	0	20.05%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$274,733**	**$46,732**		**$255,159**	**$43,811**
Total normal cost rate						
General Service			**17.01%**			**17.17%**
Police & Fire			**20.71%**			**20.83%**
Aggregate (Default)			**17.01%**			**17.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2017	$90,120
2. January 1, 2018 through June 30, 2018	
A. Transition liability/(surplus) rate[1]	2.09%
B. Actual employer payroll	276,227
C. Payment to transition liability/(surplus)	5,773
3. July 1, 2018 through December 31, 2018	
A. Transition liability/(surplus) rate[1]	2.09%
B. Actual employer payroll	317,183
C. Payment to transition liability/(surplus)	6,629
4. Supplemental payment to transition liability	0
5. Interest	5,596
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2018	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$83,314**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2018	December 31, 2017
1. Total transition liability/(surplus)	83,314	90,120
2. Combined valuation payroll	635,735	563,206
3. Regular amortization factor	7.606	8.312
4. **Total transition liability/(surplus) rate**	**1.72%**	**1.93%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2017	**N/A**		
2. Deposits during 2018			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2018			
5. Side account earnings during 2018			
6. Side account as of December 31, 2018 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2018	December 31, 2017
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2018	December 31, 2017
1. Total side account	$0	$0
2. Combined valuation payroll	635,735	563,206
3. Average amortization factor	7.606	8.312
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2018 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 7.1% in 2019 to 4.1% in 2094.
Administrative Expenses	$8.0 million, added to OPSRP normal cost. $32.5 million, added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2017 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Changes in Economic Assumptions

- **Administrative Expenses**

  Administrative expenses were assumed to be $8.0 million per year for the OPSRP System and $32.5 million per year for the Tier 1/Tier 2 System.

Changes in Demographic Assumptions

- **Mortality**

  The updated mortality assumption uses the Pub-2010 base mortality tables (published in 2019) with group-specific job category adjustments. A projection scale for continued future mortality improvement based on the 60-year average of observed Social Security mortality improvement is applied generationally to the base tables.

- **Disability, Retirement, and Termination**

  Rates for the disability, retirement, and termination assumptions were adjusted.

A complete summary of all assumptions used as part of the December 31, 2018 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions are not explicitly reflected in the determination of liabilities or contribution rates shown in this valuation. Our understanding is that redirected member contributions are expected to help pay the total collared contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions, and we have illustrated that offset for advisory 2021-2023 rates shown in this report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement, rates of investment earnings, and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool’s current normal cost rate, UAL rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions prior to GASB 75.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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