



OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

BOARD MEETING AGENDA

Friday July 23, 2021 9:00 A.M.		PERS 11410 SW 68 th Parkway Tigard, OR
ITEM		PRESENTER
A. Administration		
1.	June 4, 2021 Board Meeting Minutes	SHENOY
2.	Board Governance Assignments	
3.	Director's Report	OLINECK
	a. Forward-Looking Calendar	
	b. OPERF Investment Report	
	c. Budget Execution Report	
4.	CEM Benchmarking Results	REID
B. Administrative Rulemaking		
1.	Adoption of Optional/Alternative Retirement Plans	VAUGHN
2.	Adoption of Divorce Rules	
C. Action and Discussion Items		
1.	Legislative Session Review and 2021-23 Budget Update	
	a. Session Overview and 2022 Preview	CASE
	b. 2021-2023 Budget	GABRIEL, HORSFORD
2.	SB 1049 Implementation Update	ELLEDGE-RHODES
3.	Valuation Methods and Assumptions Including Assumed Rate of Return	MILLIMAN
4.	Notice of Assumed Rate OAR	VAUGHN
	Other Documents	

PERS Board members will be attending this meeting remotely. The public will not be able to attend the meeting in person. Visit <https://www.oregon.gov/pers/Pages/Board/PERS-Board-Information.aspx> for listening options. This meeting will be recorded. An audio recording of the meeting will be available on the PERS website following the meeting.

Public testimony will be taken on action items at the Chair's discretion.
Please submit written testimony to PERS.Board@state.or.us (three days in advance of the meeting is preferred.)

<http://www.oregon.gov/PERS/>

2021 Meetings: October 1, December 3*
2022 Meetings: January 31, March 28*, May 27, July 22*, September 30, December 2*
*Audit Committee planned for post-Board meeting

Administration

1. June 4, 2021 Board Meeting Minutes
2. Board Governance Assignments
3. Director's Report
 - a. Forward-Looking Calendar
 - b. OPERF Investment Report
 - c. Budget Execution Report
4. CEM Benchmarking Results

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM BOARD MEETING MINUTES

June 4, 2021

Board members present:

Chair Sadhana Shenoy, Vice Chair Lawrence Furnstahl, Jardon Jaramillo, Stephen Buckley, and John Scanlan attended virtually.

Staff present:

Kevin Olineck, Karen Chavez, Jason Stanley, Sam Paris, Jordan Masanga, Yvette Elledge-Rhodes, Stephanie Vaughn, Matt Rickard, Richard Horsford, Heather Case, Katie Brogan, Alyse Greer, Anne Marie Vu, Chris Geier, Christa Harrison, Daniel Rivas, El Rossman, Ethan Erickson, Jackie GrosJacques, Jake Winship, Janice Richards, Jonathan Yost, Katie Davis, MaryMichelle Sosne, Megan Ujakovich, Melanie Chandler, Melissa Piezonka, Michiru Farney, Phuongnam Tran, Rosanne Lurie, Susannah Bodman, Shawn Dempewolf attended virtually.

Others present:

Matt Larrabee, Scott Preppernau, Adam Rees, Alan Ferschweiler, Andrea Bradbury, Aruna Masih, Cari Pickett, Carol Samuels,Carolynn Avery, Christi Kent-Adair, Cindi Peterson, Cindy Moore, Clarke Coburn, Courtney Graham, Courtney Johnson, David Barenberg, David Lawler, David Moore, David Randall, Denise Martin, Douglas Berg, Erica Hedberg, Eugene Bentley, Gay Lynn Bath, Glenda Villamar, Gordon Hoberg, Hilary McClung-Chapman, Jack Dempsey, Jacob Arnold, Jacqueline Knights, Jacques Forest, Jaime Rodriguez, Jan Petrella, Jeff Gudman, Jenna Grantham, Jennifer Stacy, Julie Nguyen, Karl Koenig, Katie Kicza, Kelly Makinson, Lorna Keyes, Mai Anh Tyagi, Maurizio Bottalico, Melissa Leavitt, Michelle Taylor, Mike Schofield, Molly Butler, Nancy Brewer, Nate Carter, Patrick Weisgerber, Rex Kim, Robert Burket, Scott Winkels, Shannon Haas, Shauna Tobiasson, Shelly Taylor, Stephen Baron, Stephen Prisby, Tahni Fagerberg, Tan Cao, Tim Collier, Twylla Miler, Wilbert Warren attended virtually.

Chair Shenoy called the meeting to order at 9:02 a.m.

ADMINISTRATION

A.1. MEETING MINUTES OF MARCH 29, 2021

Board Member Buckley moved to approve the minutes as presented from the March 29, 2021, PERS Board meeting. Vice Chair Furnstahl seconded the approval of the minutes. Board Member John Scanlan abstained from voting at this meeting pending notarization of his Oath of Office. The motion passed unanimously.

A.2. BOARD GOVERNANCE ASSIGNMENTS

Board governance assignments were postponed to the July 23, 2021, meeting.

A.3. DIRECTOR'S REPORT

Director Kevin Olineck presented the Director's Report. The Director's Report contains information on other activities that the organization is working on that do not appear on the agenda.

Olineck presented the forward looking calendar. The dates for the 2022 meetings are included on the calendar with a scheduled start time of 9:00 a.m. Audit Committee dates also are listed.

The Oregon Public Employees Retirement Fund (OPERF) returns, for the period ending April 30, 2021, were 7.76%.

Operating expenditures for March, preliminary expenditures for April, and preliminary expenditures for May are \$4,456,610, \$5,255,659, and \$6,914,477 respectively. Final expenditures for May will close in the Statewide Financial Management System (SFMS) on June 18 and will be included in the July 2021 report to the board.

Through May 14, 2021, the agency has expended a total of \$97,304,258 or 84.0% of PERS' legislatively approved operations budget of \$116,441,606. At this time, the agency's projected variance is \$7,070,979.

A.4. ANNUAL REPORT OF BOARD MEMBER TRAINING ACTIVITIES

Olineck presented the Annual Report of Board Member Training Activities. At the May 2020 board meeting, the board adopted the Board Education Policy. The Policy proposes that each board member be subject to a \$5,000 per annum education limit. The Policy states the director will prepare a yearly report on the training activities of the PERS Board members. This report satisfies the requirement.

No board action was required.

A.5. BOARD SCORECARD REPORT ON AGENCY PERFORMANCE MEASURES

Matt Rickard of the PERS Outcome-Based Management System (POBMS) Council presented the Board Scorecard Report on Agency Performance Measures, of which 40% of the reported measures are in the green range for the first quarter of 2021. The next Board Scorecard will be presented at the December meeting.

No board action was required.

ADMINISTRATIVE RULEMAKING

Stephanie Vaughn, Policy Analysis and Compliance Section Manager, presented.

B.1. NOTICE OF OPTIONAL/ALTERNATIVE RETIREMENT PLANS

Vaughn presented Notice of Rulemaking for Optional or Alternative Retirement Plans: OAR 459-005-0310, Date of Participation and Transfer of Employee Funds to the Optional Retirement Plan, OAR 459-005-0350, Membership Status of Persons in Concurrent Employment Eligible to Participate in an Optional or Alternative Retirement Plan, OAR 459-005-0370, Date of Participation and Transfer of Employee Funds to an Alternative Retirement Plan — OHSU, OAR 459-010-0003, Eligibility and Membership for the PERS Tier One/Tier Two Program, and OAR 459-075-0010, Eligibility and Membership.

No rulemaking hearing will be held because the PERS building is closed to the public. The public comment period ends June 25, 2021, at 5:00 p.m.

No board action was required.

B.2. NOTICE OF DIVORCE RULES

Vaughn presented Notice of Rulemaking for Division of Benefits Rules Impacted by SB 1049: OAR 459-005-0001, Definitions, OAR 459-045-0012, OPSRP Pension Program Division of Benefits, OAR 459-045-0014, Individual Account Program (IAP) Division of Benefits, and OAR 459-045-0034, General Administration for Individual Account Program (IAP).

No rulemaking hearing will be held because the PERS building is closed to the public. The public comment period ends June 25, 2021, at 5:00 p.m.

No board action was required.

ACTION AND DISCUSSION ITEMS

C.1. LEGISLATIVE UPDATE

Heather Case, Senior Policy Advisor, presented.

Case provided an update on the 2021 legislative session and the bills impacting the agency. She outlined the status of the three PERS agency bills: Senate Bill (SB) 111, SB 112, and SB 113. PERS budget presentations were held in February and March. PERS presented to the Joint Committee on Information Management and Technology on the progress of SB 1049 (2019) implementation on April 7, 2021. The agency's report was accepted.

No board action was required.

C.2. SB 1049 IMPLEMENTATION UPDATE

Yvette Elledge-Rhodes, Deputy Director, presented.

Elledge-Rhodes reviewed the ongoing activities of the five individual projects that make up the SB 1049 Implementation Program. She highlighted program activities that have been completed, or are in process, since the last board meeting. PERS staff will continue to update the board as project implementation continues throughout the next year.

Program health has been downgraded to yellow from red since the 2021-2023 budget, although not yet approved, is close. It will remain in yellow status as Member Redirect is scheduled past the end of the 2021-2023 biennium. All five of the individual projects are in green status.

No board action was required.

C.3. PERS HEALTH INSURANCE PLAN ANNUAL UPDATE

Vice Chair Furnstahl recused himself from participating in this conversation, given his association with OHSU, and left the meeting.

Karen Chavez, PERS Health Insurance Program Manager presented the PERS Health Insurance Program (PHIP) annual update. Chavez reviewed the mission, core operating principals, resources, consultants, membership, and health plans associated with the program.

No board action was required.

C.4. 2022 RETIREE HEALTH INSURANCE PLAN RENEWALS AND RATES

Karen Chavez, PERS Health Insurance Program (PHIP) Manager, presented the 2022 PHIP Plans and Rates.

Board Member Buckley moved to approve the proposed PHIP RFP contract renewals, benefits, and rates for the 2022 Plan Year as presented in Item C.4.Attachment 1: PHIP 2022 Proposed Rates. Board Member Jaramillo seconded the motion. Board Member John Scanlan abstained from voting. The motion passed unanimously.

Vice Chair Furnstahl rejoined the meeting at this time.

C.5. OVERVIEW OF ACTUARIAL METHODS AND ECONOMIC ASSUMPTIONS

Scott Preppernau and Matt Larrabee of Milliman presented an overview of economic assumptions and system funding methods. The presentation reviewed inflation and system payroll growth, the assumed rate, and actuarial methods including amortization and collaring policy. At the July 2021 meeting, demographic assumptions will be discussed before asking for adoption of the assumptions and methods for the current and next year's advisory valuation. They will come back with the 2020 valuations results in October 2021.

No board action was required.

Chair Shenoy acknowledged the receipt of the attached written public testimony.

- A.1. Attachment 1, *Douglas Berg*
- A.1. Attachment 2, *Jared Mason-Gere*
- A.1. Attachment 3, *Jeff Wallace*

Chair Shenoy adjourned the PERS Board meeting at 12:12 p.m.

Respectfully submitted,



Kevin Olineck, Director

From: [Douglas Berg](#)
To: [PERS BOARD](#)
Subject: Testimony for June 4 PERS Board meeting
Date: Monday, May 31, 2021 3:28:09 PM
Attachments: [PERS Board written testimony June 4 2021.pdf](#)
[ATT00001.htm](#)

Here is my testimony. Thanks.

Douglas Berg
Eugene
206 353 2350

Members of the PERS Board:

Some of you may recall I addressed the board in 2019 to offer input into your deliberations on setting the system's assumed rate of return. I noted that the current assumed rate was far above what PERS investments had returned from its peak just before the 2008 financial crisis to the present. I urged you to continue reducing the assumed rate as had been done by previous boards over three rate-setting cycles before 2019, which you declined to do.

I further urged you to consider the actual long-term returns on PERS investments in your decision-making process and not rely solely on projections of future returns, which have been notoriously inaccurate.

I am back today to re-iterate these concepts, but with the added perspective gained from the latest information provided by Milliman in today's board materials.

We now see that both Milliman and Callan have sharply lowered their projections. Callan, who has shown a history of high projections, has slashed its prediction by nearly 0.75 percent, down to 6.8 percent. And Milliman is all the way down to 6.27 percent, which is almost exactly what PERS investments have actually returned 2008-2020.

All the data before the board today, along with Milliman's pointed recommendations, overwhelmingly call for a substantial reduction in the assumed rate.

I note two other factors that are present today that were not in 2019. When combined, they give the board an opportunity to do something truly historic.

First, PERS investments have had a fabulous two years, rising over \$10 billion. This huge valuation is already showing in Milliman's preliminary calculation of the uncollared base rate for employer contributions, which shows a rare reduction at the current assumed rate.

And second, 2021 revenue projections for Oregon call for a massive \$1 billion in additional revenue, most of which will flow to the budgets of public employers.

These factors work together to provide an exceedingly rare opportunity for the board: slashing the assumed rate without causing a rate increase that employers would have difficulty absorbing.

Please do not miss this chance to bring the assumed rate into the realm of reality and greatly enhance the actuarial health of the PERS system.

Douglas Berg
Eugene, OR 97405
206 353-2350
bergdw@icloud.com

From: [Jared Mason-Gere](#)
To: [PERS BOARD](#)
Cc: andrea.cooper@oregon.gov; [Jennifer Baker](#); [PALMATEER Dmitri](#); [Kevin Olineck](#)
Subject: Assumed Rate of Return Letter
Date: Tuesday, June 1, 2021 4:57:19 PM
Attachments: [Letter to PERS Board 6-1-21 Assumed Rate of Return.pdf](#)

Good afternoon,

Please find attached for your consideration a letter from a variety of organizations representing public sector employers and employees who will be affected by changes to the PERS assumed rate of return.

Thank you,

*Jared Mason-Gere
Government Relations
Oregon Education Association*



June 1, 2021

Public Employees Retirement Board

via email to: PERS.BOARD@pers.state.or.us

Chair Sadhana Shenoy

Vice Chair Lawrence J. Furnstahl

Jardon Jaramillo

Stephen Buckley

John Scanlan

cc: Gov. Kate Brown, Treas. Tobias Read, PERS Director Kevin Olineck

Re: Assumed Rate of Return

Dear Board Members,

At the upcoming PERS Board meeting, the Board will be considering a number of actuarial assumptions, including the assumed rate of return. More specifically, the Board will be considering lowering that assumption from the current rate of 7.2 percent. All stakeholders in the system have a shared interest in the actuarial soundness of the system, and we recognize that some reduction in the assumed rate is being recommended. As representatives of employer and employee stakeholders in the system, we write to urge the PERS Board to take a measured approach with regard to any reduction and adopt a rate no lower than 7 percent.

In urging the Board to go no lower than 7 percent, we take into account the following factors. A reduction in the assumed rate below 7 percent significantly increases employer rates undermining the goal of stability for employer long-term pension planning and budgeting for other public services. In addition, a 7 percent assumed rate would still be at the median of assumed rates of other pension systems as reported by NASRA and Milliman. Furthermore, while historical actual rates of return--which have on average exceeded the assumed rate over the last decade--are not a predictor of future returns, they do give stakeholders assurance that the Oregon Investment Council (OIC) has a record of making sound investment decisions which have produced good returns for the PERS Fund while mitigating the impact of downturns. Finally, we recognize that statutorily the board revisits the assumptions regularly and can make further course-corrections, if needed, within the next few years.

We hope the Board will give these factors the most serious consideration in making its final decision.

Sincerely,

Oregon Education Association

Coalition of Oregon School Administrators

Oregon State Fire Fighters Council

Oregon Fire Chiefs Association

Oregon Nurses Association

Oregon AFSCME Council 75

SEIU 503

Oregon School Employees Association, AFT, Local 6732

Oregon AFL-CIO

Association of Oregon Corrections Employees

Association of Oregon Faculties

American Association of University Professors, Oregon

American Association of University Professors, PSU



From: jcewallace@frontier.com
To: [PERS BOARD](#)
Subject: Public employee plea
Date: Wednesday, June 2, 2021 8:10:20 AM

Dear Board,

As a public employee nearing retirement, I am appalled I may take it on the chin once again. I cannot believe with record taxes, record high home prices and higher property taxes, I must again be the sacrificial lamb for pension costs! I have already seen my pension reduced, I somehow had to give up my pay this year(I pay my own PERS) to help pay for myself in retirement(future that one out?), and every year I lose more of the 8% I was promised when I started working. I fume that we must now take the brunt of others mistakes all the while retirees of the 2000's make an obscene amount of money every month! Please do the right thing on Thursday and vote to keep things as they are, we can ill afford anymore cuts. Then hire investment advisors that can actually earn a rate comparable to a non managed index fund! The 2020 S&P earned over 15%, my IAP earned just over 8%. This is not acceptable!

Sincerely, Jeff Wallace

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PERS Board Governance Assignments

Proposed for 2021

Stephen Buckley	Audit Committee
John Scanlan	Legislative Advisory Committee Retiree Health Insurance Advisory Committee
Lawrence Furnstahl	Board Vice-Chair Legislative Advisory Committee
Jardon Jaramillo	Audit Committee (Chair)
Sadhana Shenoy	Board Chair Audit Committee

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Director's Report

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Kevin Olineck, Director



Overview

This Director's Report tries to encapsulate, at a high level, noteworthy changes that have taken place since the last board meeting, while highlighting staff accomplishments.

Ongoing efforts

Senate Bill 1049 (SB 1049) As of June 30, we have implemented three of five projects associated with SB 1049. Work continues on both the Work After Retirement and Member Redirect projects. More detailed SB 1049 implementation reports on the overall program and projects will be provided in the board packet.

COVID-19 Response I am very proud of the collaborative efforts shown by all areas of the agency in responding to this situation. I am particularly proud of the fact that, operationally, PERS continues to provide our regular services with minimal interruption to normal service levels.

Highlights

I want to continue to highlight where PERS staff have not only made great strides with standard operational processes but also made significant progress on strategic initiatives. The following are accomplishments that deserve to be highlighted, with staff publicly acknowledged for their efforts.

Agency initiatives and accomplishments

PERS 75th Anniversary PERS celebrated the agency's 75th anniversary on July 1. A workgroup planned celebrations in honor of the 75th anniversary of PERS, within the constraints of the pandemic. Activities and celebrations will continue throughout the year and will include a tree planting at the headquarters building; the development of a 75th anniversary historical document, based on the 60th anniversary edition; and an historical timeline display featuring photos and members stories, collected by the workgroup. Additionally, based on staff input, a tagline was developed to use in some of our digital materials:



Information Security and Continuity Management Program Assessments Over the past quarter, both our Information Security and Continuity Management programs underwent a biannual assessment from an external party. Both reviews were positive with respect to our efforts to build out and maintain these two very important programs. Of note is the recommendation to develop an overarching Enterprise Risk Management Program. However, funding for that was not provided as part of the agency's 2021-2023 Legislatively Approved Budget. Further discussion on these assessments will take place as part of the Audit Committee meeting.

NCPERS Certificate of Transparency The National Conference on Public Employee Retirement Systems awarded PERS a Certificate of Transparency for our participation in the 2020 NCPERS Public Retirement Systems Study, which seeks to further open disclosure, data collection, and encourage the public's understanding of public retirement systems. This study provides the latest information on plan design, investment allocations and returns, actuarial assumptions, and plan governance practices.



2021 Replacement Ratio Study Summary The Replacement Ratio Study population consists of 116,699 retirements from January 1990 through December 2020 and covers retired members who selected comparable monthly benefit options.

Average age at retirement for applicable 2020 retirees: 62 years old

Average years of service at retirement for applicable 2020 retirees: 26 years of service

Average monthly retirement benefit

- For all retirees from 1990-2020, the average monthly retirement benefit at time of retirement was \$2,455 per month, or about \$29,463 annually.
- For those retirees in the most recent year (2020), the average monthly retirement benefit was \$3,210 per month, or about \$38,522 annually.

Average public employee salaries at retirement

- For all retirees from 1990-2020, the final average salary at retirement was \$56,124 annually.
- For 2020 retirees, the final average salary at retirement was \$86,389 annually.

Average salary replacement ratio

- For all retirees from 1990-2020, the average annual retirement benefit equaled 52% of final average salary at the time of retirement.
- For 2020 retirees, the average annual retirement benefit equaled 44% of final average salary.
- For all retirees from 1990-2020, there were 5.9%

who received annual benefits more than 100% of final average salary. The average of years of service for this group was 31 years.

- For 2020 retirees, 1.5% received annual benefits more than 100% of final average salary. The average of years of service for this group was 38 years.

For members who retired with 30 years of service

From 1990-2020, the average retirement benefit for 30-year members equaled 76% of final average salary and the average monthly benefit was \$3,732 per month.

- The average replacement ratio for 30-year members peaked at 100% of final average salary in 2000 and their average monthly benefit was \$4,200 per month.
- For 2020 only, the average retirement benefit for 30-year members equaled 50% of final average salary and the average monthly benefit was \$4,047 per month.
- 10.3% of retirees from 1990-2020 had 30 years of service.
- 9.4% of retirees in 2020 had 30 years of service.

Note: Benefits related to inactive, lump sum, judge, and legislator retirements are excluded.

PERS Board Meeting Forward-Looking Calendar

Friday, October 1, 2021

Strategic Plan Overview
Legislative Update / Legislative Concepts
Member and Employer Survey Results
Final Adoption of Valuation Methods and Assumptions Including Assumed Rate of Return
Valuation Results – Advisory Employer Rates
Final Adoption of Assumed Rate OAR

Friday, December 3, 2021*

Board Governance Assignments
Board Scorecard Report on Agency Performance Measures
Strategic Plan Approval
Valuation Update and Financial Modeling Results
Adoption of Actuarial Equivalency Factor Tables

2022 Meeting Dates

9:00 a.m. Start Times

- Monday, January 31, 2022
- Monday, March 28, 2022*
- Friday, May 27, 2022
- Friday, July 22, 2022*
- Friday, September 30, 2022
- Friday, December 2, 2022*

**Audit Committee planned for post-board meeting*

Returns for periods ending JUN-2021

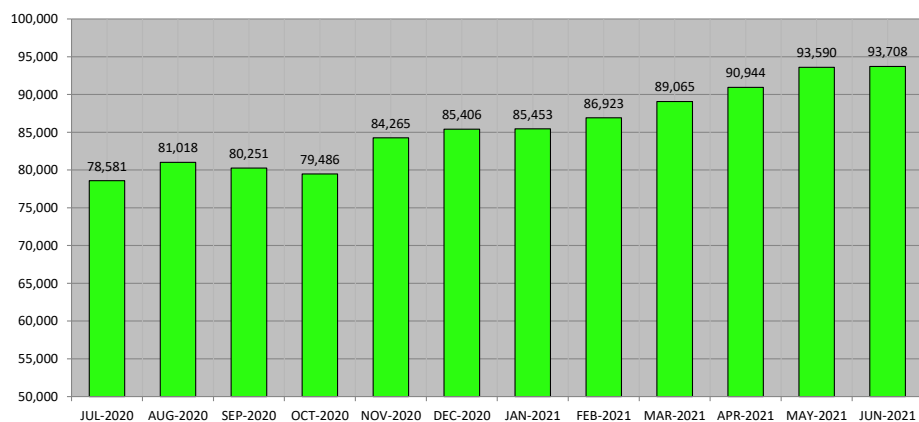
Oregon Public Employees Retirement Fund

OPERF	Regular Account				Historical Performance (Annual Percentage)							
	Policy ¹	Target ¹	\$ Thousands ²	Actual	Year-To-Date ³	1 YEAR	2 YEARS	3 YEARS	4 YEARS	5 YEARS	7 YEARS	10 YEARS
Public Equity	27.5-37.5%	32.5%	\$ 26,423,117	29.4%	14.63	42.66	18.40	13.26	12.87	14.32	9.60	10.08
Private Equity	13.5-21.5%	17.5%	\$ 22,637,040	25.1%	21.67	44.12	20.69	18.77	18.52	17.31	14.19	13.72
Total Equity	45.0-55.0%	50.0%	\$ 49,060,158	54.5%								
Opportunity Portfolio	0-5%	0%	\$ 2,047,526	2.3%	13.82	31.52	14.49	10.72	9.85	9.72	7.25	8.60
Total Fixed	15-25%	20.0%	\$ 18,705,624	20.8%	(1.11)	1.27	4.46	5.38	4.10	3.57	3.28	3.94
Risk Parity	0.0-2.5%	2.5%	\$ 2,167,068	2.4%	8.28	21.51						
Real Estate	9.5-15.5%	12.5%	\$ 9,427,826	10.5%	5.75	8.18	6.36	6.19	6.80	7.10	8.33	9.39
Alternative Investments	7.5-17.5%	15.0%	\$ 8,595,016	9.5%	8.51	11.48	0.25	(0.72)	0.55	2.56	1.41	1.86
Cash w/Overlay	0-3%	0%	\$ 9,846	0.0%	0.14	0.48	1.49	2.06	1.91	1.76	1.46	1.24
TOTAL OPERF Regular Account		100.0%	\$ 90,013,064	100.0%	11.36	25.54	12.34	10.37	10.13	10.53	8.24	8.80
OPERF Policy Benchmark					9.74	26.89	14.10	11.75	11.11	11.49	9.15	9.60
Value Added					1.62	(1.35)	(1.76)	(1.39)	(0.98)	(0.95)	(0.90)	(0.80)
Target Date Funds			3,245,279									
TOTAL OPERF Variable Account			\$ 449,728		12.89	41.29	19.75	14.58	13.81	14.93	10.08	10.28

Asset Class Benchmarks:

Russell 3000	15.11	44.16	23.93	18.73	17.73	17.89	13.95	14.70
OREGON MSCI ACWI EX US IMI NET	9.58	37.18	14.32	9.42	9.00	11.20	5.56	5.65
MSCI ACWI IMI NET	12.68	40.94	19.41	14.24	13.46	14.55	9.69	9.90
RUSSELL 3000+300 BPS QTR LAG	23.72	67.21	25.12	20.59	19.73	20.09	16.81	17.17
CPI + 5%	6.87	10.64	8.13	7.66	7.74	7.54	6.97	6.96
OREGON CUSTOM FI BENCHMARK	(1.13)	0.67	4.12	5.12	3.88	3.18	2.99	3.48
S&P Risk Parity - 12% Target Volatility	11.13	32.01	15.99	14.62	13.53	11.43	8.83	10.49
OREGON CUSTOM REAL ESTATE BENCHMARK	3.00	1.47	2.69	3.96	4.74	5.26	7.18	8.52
CPI +4%	6.36	9.59	7.10	6.63	6.72	6.51	5.96	5.94
91 Day Treasury Bill	0.02	0.09	0.86	1.34	1.35	1.17	0.87	0.63

Total OPERF NAV
(includes Variable Fund assets)
One year ending JUN-2021
(\$ in Millions)



¹OIC Policy revised April 2019.

²Includes impact of cash overlay management.

³For mandates beginning after January 1 (or with lagged performance), YTD numbers are "N/A". Performance is reflected in Total OPERF. YTD is not annualized.

Returns for periods ending MAY-2021

Oregon Public Employees Retirement Fund

OPERF	Regular Account				Historical Performance (Annual Percentage)							
	Policy ¹	Target ¹	\$ Thousands ²	Actual	Year-To-Date ³	1 YEAR	2 YEARS	3 YEARS	4 YEARS	5 YEARS	7 YEARS	10 YEARS
Public Equity	27.5-37.5%	32.5%	\$ 26,659,707	29.6%	14.37	46.09	22.01	12.84	13.02	14.12	9.93	9.88
Private Equity	13.5-21.5%	17.5%	\$ 22,672,616	25.2%	21.31	42.76	20.92	18.58	18.98	17.35	14.61	14.47
Total Equity	45.0-55.0%	50.0%	\$ 49,332,323	54.8%								
Opportunity Portfolio	0-5%	0%	\$ 1,976,843	2.2%	13.03	31.65	13.43	10.55	9.83	9.65	7.30	8.60
Total Fixed	15-25%	20.0%	\$ 18,388,647	20.4%	(1.94)	1.17	4.63	5.08	3.86	3.72	3.20	3.82
Risk Parity	0.0-2.5%	2.5%	\$ 2,094,280	2.3%	4.64	20.59						
Real Estate	9.5-15.5%	12.5%	\$ 9,494,283	10.6%	5.55	7.68	6.28	6.51	6.84	7.48	8.52	9.57
Alternative Investments	7.5-17.5%	15.0%	\$ 8,641,340	9.6%	9.39	12.02	0.90	(0.73)	0.75	2.67	1.63	
Cash w/Overlay	0-3%	0%	\$ 15,945	0.0%	0.15	0.74	1.67	2.12	1.94	1.79	1.46	1.25
TOTAL OPERF Regular Account		100.0%	\$ 89,943,661	100.0%	10.90	26.03	13.55	10.10	10.20	10.55	8.47	8.86
OPERF Policy Benchmark					8.38	25.37	15.42	11.25	11.24	11.38	9.22	9.54
Value Added					2.52	0.66	(1.87)	(1.15)	(1.03)	(0.83)	(0.75)	(0.68)

Target Date Funds

3,195,017

TOTAL OPERF Variable Account

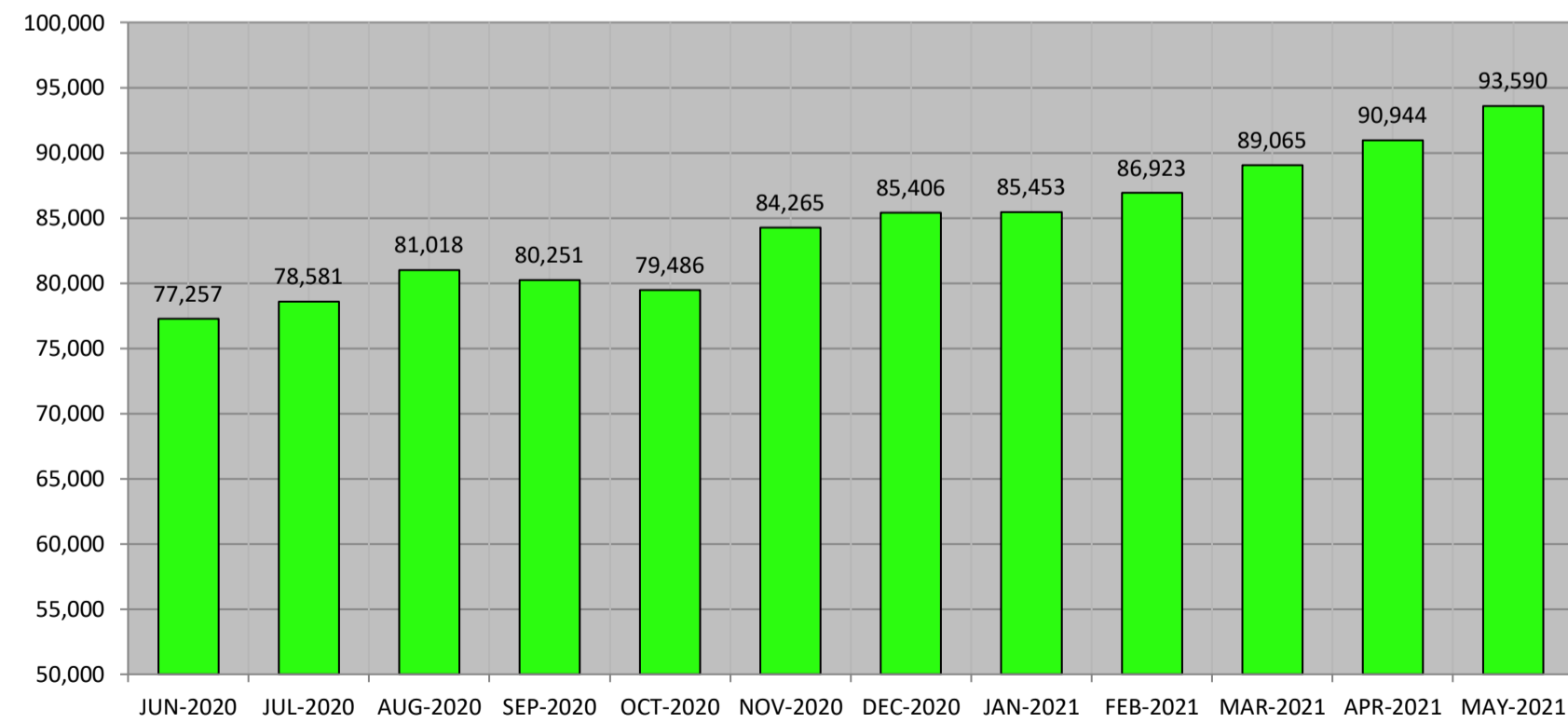
\$ 451,573

11.97	44.59	23.03	14.05	13.76	14.58	10.28	10.01
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Asset Class Benchmarks:

Russell 3000	12.34	43.91	26.65	18.03	17.28	17.36	13.96	14.21
OREGON MSCI ACWI EX US IMI NET	10.29	44.08	17.97	8.92	9.27	10.95	5.92	5.56
MSCI ACWI IMI NET	11.34	43.71	22.45	13.56	13.28	14.11	9.84	9.58
RUSSELL 3000+300 BPS QTR LAG	20.91	51.54	26.59	19.68	20.94	19.95	16.88	17.71
CPI + 5%	5.46	10.22	7.64	7.38	7.52	7.41	6.86	6.85
OREGON CUSTOM FI BENCHMARK	(1.78)	0.52	4.32	4.88	3.68	3.39	2.91	3.39
S&P Risk Parity - 12% Target Volatility	9.24	35.17	18.39	13.42	12.32	11.88	8.79	10.10
OREGON CUSTOM REAL ESTATE BENCHMARK	2.36	1.10	2.58	3.97	4.98	5.54	7.50	8.81
CPI +4%	5.04	9.18	6.62	6.36	6.50	6.39	5.85	5.83
91 Day Treasury Bill	0.03	0.11	0.97	1.40	1.37	1.18	0.87	0.63

Total OPERF NAV
(includes Variable Fund assets)
One year ending MAY-2021
(\$ in Millions)



¹OIC Policy revised April 2019.

²Includes impact of cash overlay management.

³For mandates beginning after January 1 (or with lagged performance), YTD numbers are "N/A". Performance is reflected in Total OPERF. YTD is not annualized.



Oregon

Kate Brown, Governor

Public Employees Retirement System

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July 23, 2021

TO: Members of the PERS Board
FROM: Gregory R. Gabriel, Budget Officer
SUBJECT: July 2021 Budget Report

2019-2021 OPERATING BUDGET

Operating expenditures for May and preliminary expenditures for June are \$4,406,314 and \$7,492,549, respectively. Final expenditures for June will close in the Statewide Financial Management System (SFMS) on July 16 and will be included in the October 2021 report to the Board.

- Through June 27, 2021, the agency has expended a total of \$104,011,852 or 89.3% of PERS' legislatively approved operations budget of \$116,441,606.
- At this time, the agency's projected variance is \$7,077,964.
- SB 1049 expenditures for May and preliminary expenditures for June are \$1,176,688 and \$1,498,797, respectively. As of June 27, the agency has expended \$23,822,778 of the legislatively approved budget of \$29,033,897.
- At this time, the SB 1049 projected variance is \$2,691,577.

2019-2021 NON-LIMITED BUDGET

The adopted budget includes \$12,504,627,192 in total estimated Non-Limited expenditures. Non-Limited expenditures include benefit payments, health insurance premiums, and third-party administration payments for both the PERS Health Insurance Program (PHIP) and the Individual Account Program (IAP).

- Non-Limited expenditures through June 27, 2021, are \$11,265,922,300.

2021-2023 LEGISLATIVELY ADOPTED BUDGET

The agency's Legislatively Adopted Budget for 2021-2023 (SB 5536) has been finalized and signed by the Governor. PERS' operating limitation totaling \$150,582,110 was approved, which includes \$23,614,797 to continue work on SB 1049 related implementation.

The adopted budget also consists of \$12,886,613,593 in Non-Limited budget, which represents benefit payments, health insurance premiums, and third-party administration payments for both the PERS Health Insurance Program and the Individual Account Program.

Further budget adjustments impacting PERS have been made in House Bill 5006 (End of Session Bill), which resulted in a reduction of State Government Service Charges of \$3,588,447 and approval of a Lottery Funds transfer of \$16,792,238 related to the Employer Incentive Fund. More detailed information on the 2021-2023 Legislatively Adopted Budget can be found in Item C.1.b.

A.3.c. Attachment – 2019-2021, SB 1049 Agency-wide Budget Execution Summary Analysis

PERS Monthly Budget Report

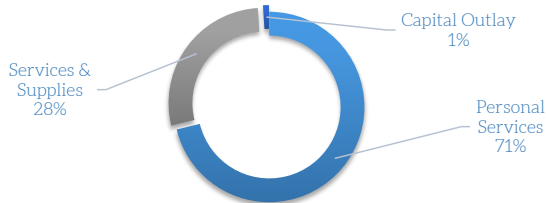
2019-21 Agency-wide Budget Execution
Preliminary Summary For the Month of June 2021

Limited - Operating Budget

2019-21 Biennial Summary

Category	Actual Exp. To Date	Projected Expenditures	Total Est. Expenditures	2019-21 LAB	Variance
Personal Services	74,049,150	3,562,209	77,611,359	81,510,947	3,899,588
Services & Supplies	28,914,192	1,055,596	29,969,788	32,757,328	2,787,540
Capital Outlay	1,048,510	733,985	1,782,495	2,173,331	390,836
Total	104,011,852	5,351,790	109,363,642	116,441,606	7,077,964

Actual Expenditures



Projected Expenditures



Monthly Summary

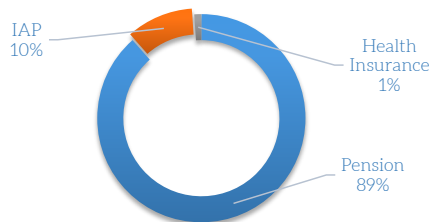
Category	Actual Exp.	Projections	Variance	Avg. Monthly Actual Exp.	Avg. Monthly Projected Exp.
Personal Services	3,437,532	3,562,209	124,678	3,365,870	3,465,769
Services & Supplies	3,335,712	3,403,788	68,076	1,314,281	1,464,410
Capital Outlay	719,305	733,985	14,680	47,660	165,598
Total	7,492,549	7,699,983	207,434	4,727,811	5,095,778

Non-Limited Budget

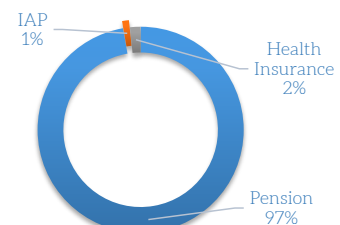
2019-21 Biennial Summary

Programs	Actual Exp To Date	Projected Expenditures	Total Est. Expenditures	Non-Limited LAB	Variance
Pension	9,971,397,821	413,515,855	10,384,913,676	10,347,780,673	(37,133,003)
IAP	1,171,116,097	4,534,435	1,175,650,532	1,423,365,167	247,714,635
Health Insurance	123,408,381	7,078,372	130,486,753	733,481,352	602,994,599
Total	11,265,922,300	425,128,662	11,691,050,962	12,504,627,192	813,576,230

Actual Expenditures



Projected Expenditures



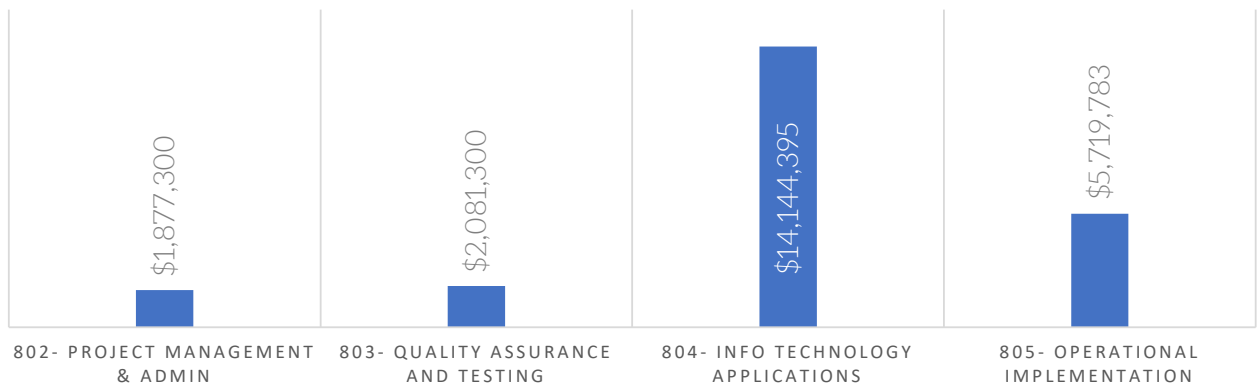
SB 1049 Budget Report

Preliminary Summary Budget Analysis For The Month of June 2021

Biennial Summary

Category	Actual Exp. To Date	Projected Expenditures	Total Est. Expend.	2019-21 LAB	Variance
Personal Services	3,944,049	308,890	4,252,939	6,120,680	1,867,741
Services & Supplies	19,481,760	2,210,652	21,692,412	22,913,217	1,220,805
Capital Outlay	396,969		396,969		(396,969)
Total	23,822,778	2,519,542	26,342,320	29,033,897	2,691,577

EXPENDITURES BY PACKAGE



EXPENDITURES BY PROJECT



Administration

1. June 4, 2021 Board Meeting Minutes
2. Board Governance Assignments
3. Director's Report
 - a. Forward-Looking Calendar
 - b. OPERF Investment Report
 - c. Budget Execution Report
4. CEM Benchmarking Results

Oregon Public Employees Retirement System

Pension Administration Benchmarking Report FY 2020



Key Takeaways:

Cost

- Your total pension administration cost of \$163 per active member and annuitant was \$53 above the peer average of \$110.
- Primary reasons why your cost per member was higher:
 - higher support and IT costs
 - more front office FTE per 10,000 members
- Oregon PERS has the second highest plan design complexity scores among CEM's global universe. High complexity negatively impacts service, front office productivity, and back office costs.

Service

- Your total service score was 60. This was below the peer median of 82.
- Your service score increased from 58 to 60 between 2013 and 2020.

75 leading global pension systems participate in CEM's benchmarking service

United States

Arizona SRS
CalPERS
CalSTRS
Colorado PERA
Delaware PERS
Florida RS
Idaho PERS
Illinois MRF
Indiana PRS
Iowa PERS
KPERs
LACERA
Maryland SRPS
Michigan ORS
Minnesota State RS
Nevada PERS
North Carolina RS
NYC ERS
NYC TRS
NYSLRS
Ohio PERS
Oregon PERS
Pennsylvania PSERS
PERS of Mississippi
PSRS PEERS of Missouri

South Carolina RS
South Dakota RS
STRS Ohio
Texas MRS
TRS Illinois
TRS Louisiana
TRS of Texas
Utah RS
Virginia RS
Washington State DRS
Wisconsin DETF

Canada

Alberta Teachers RS
Alberta Pension System
BC Pension Corporation
Canadian Forces PP
Federal Public Service PP
LAPP of Alberta
OMERS
Ontario Pension Board
Ontario Teachers
OPTrust
RCMP
Saskatchewan HEPP

The Netherlands*

ABN Amro PF
ABP
bpfBOUW
BPF Levensmiddelen
BPL Pensioen
Metaal en Techniek
PF PWRI
PF Vervoer
PFZW
Rabobank PF
Shell PF

South Africa

EPPF

United Kingdom*

BSA NHS Pensions
BT Pension Scheme
Greater Manchester PF
Local Pensions Partnership
Lothian PF
Merseyside PF
Pension Protection Fund
Principal Civil Service
Royal Mail Pensions
South Yorkshire PF
Teachers' Pensions
Tyne & Wear PF
Universities Superannuation
West Midlands Metro
West Yorkshire PF

* Systems in the UK and most systems in the Netherlands complete different benchmarking surveys and hence your analysis does not include their results.

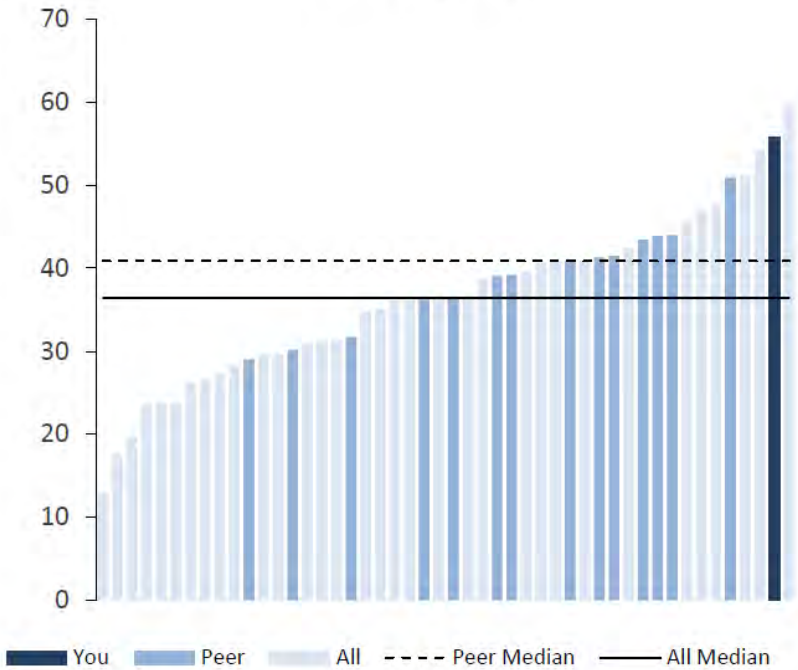
Oregon PERS was compared to the following 15 peers:

Custom Peer Group for Oregon PERS			
Peers (sorted by size)	Membership (in 000's)		
	Active Members	Annuitants	Total
Virginia RS	346	215	561
Washington State DRS	338	201	539
Ohio PERS	304	215	519
Wisconsin DETF	258	209	467
Indiana PRS	252	164	416
Arizona SRS	210	159	369
Colorado PERA	245	124	369
STRS Ohio	209	159	368
Oregon PERS	181	155	336
Illinois MRF	178	136	314
Iowa PERS	170	127	297
TRS Illinois	163	126	289
PSRS PEERS of Missouri	129	98	227
TRS Louisiana	92	81	172
LACERA	99	68	167
Peer Median	209	155	368
Peer Average	212	149	361

Inactive members are not considered when selecting peers because they are excluded when determining cost per member. They are excluded because they are less costly to administer than either active members or annuitants.

Back office costs, service and productivity are impacted by system complexity. Your total complexity score of 56 was above the peer average of 40.

Total Complexity



Complexity Score by Cause

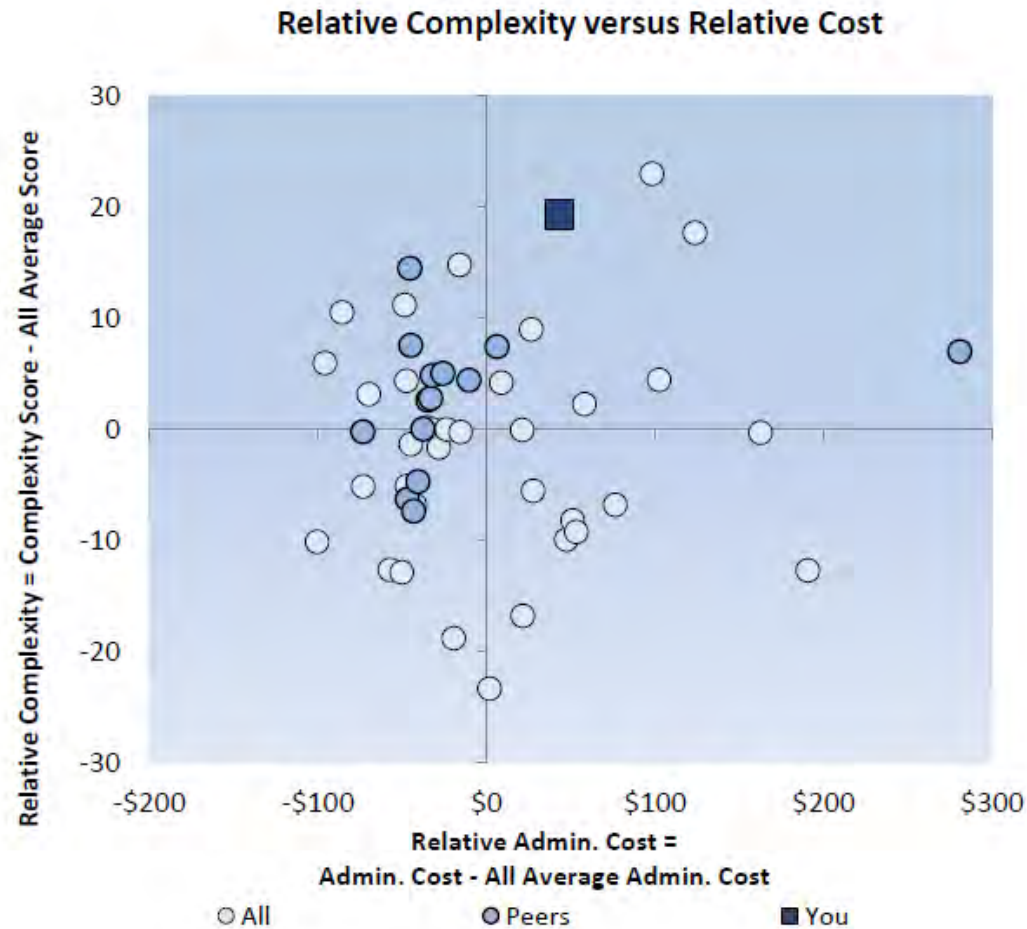
(0 least - 100 most)

Cause	You	Peer Avg
Pension Payment Options	46	39
Customization Choices	26	14
Multiple Plan Types and Overlays	75	32
Multiple Benefit Formula	70	52
External Reciprocity	0	31
COLA Rules	57	31
Contribution Rates	64	38
Variable Compensation	100	81
Service Credit Rules	48	46
Divorce Rules	100	60
Purchase Rules	67	59
Refund Rules	24	43
Disability Rules	83	66
Total Complexity	56	40

Your plan complexity score increased from 54 to 56 as a result of SB 1049.

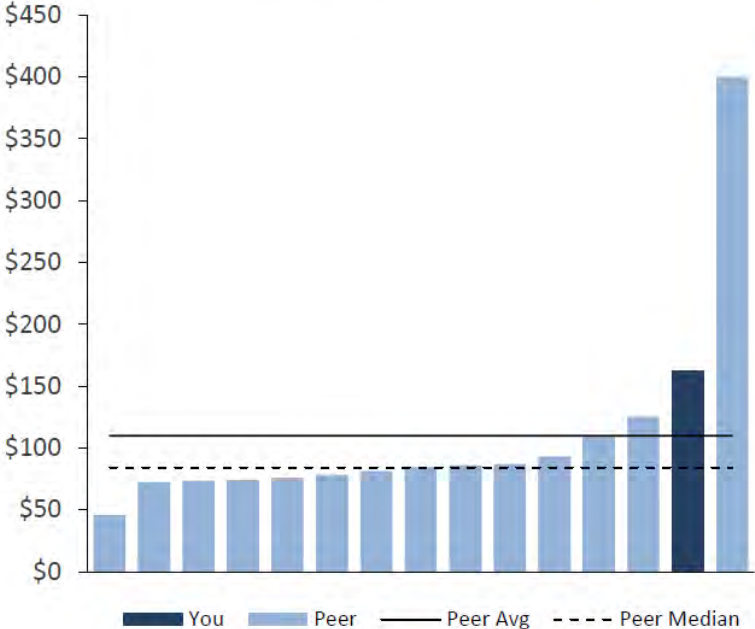


The relationship between complexity and pension administration cost in the CEM universe:



Your total pension administration cost of \$163 per active member and annuitant was \$53 above the peer average of \$110.

Pension Administration Cost Per Active Member and Annuitant



Category	\$000s	\$ per Active Member and Annuitant	
		You	Peer Avg
<u>Front office</u>			
Member Transactions	4,969	15	16
Member Communication	6,636	20	20
Collections & Data Maintenance	5,738	17	7
<u>Governance and support</u>			
Governance and Financial Control	2,504	7	8
Major Projects	10,677	32	8
Information Technology	13,143	39	27
Building	1,174	3	6
HR	845	3	3
Actuarial	809	2	1
Legal	2,063	6	5
Audit	1,205	4	4
Other Support Services	4,822	14	4
Total Pension Administration	54,584	163	110

Your total pension administration cost was \$54.6 million. This excludes the fully-attributed cost of administering healthcare, and optional and third-party administered benefits of \$15.6 million.

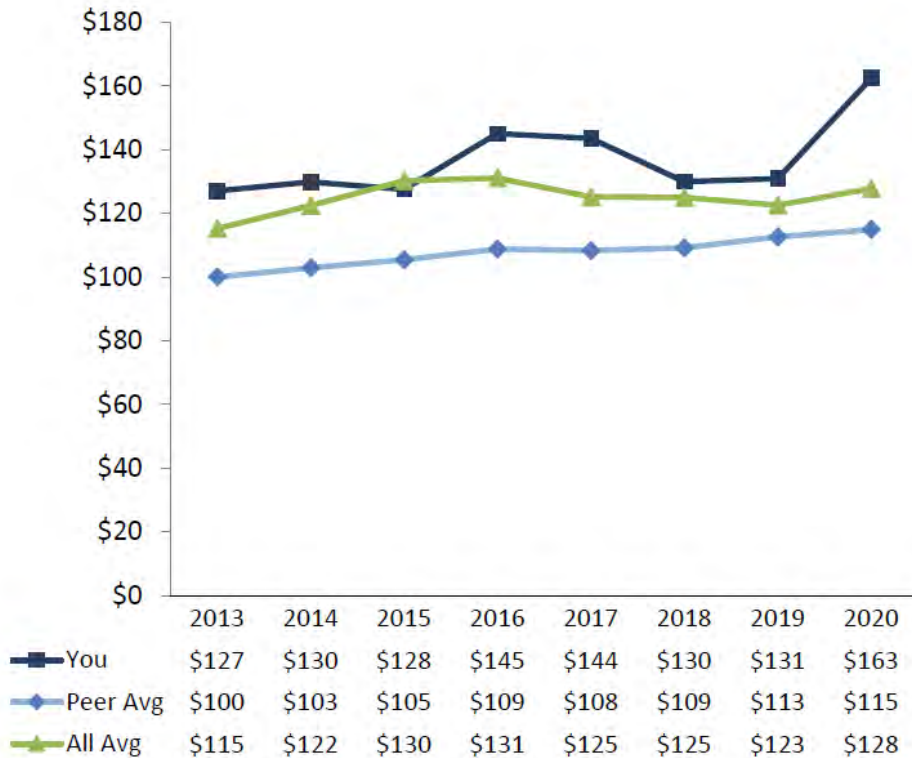
Reasons why your total cost was \$53 above the peer average:

Reason	You	Peer Avg	Impact \$ per active member and annuitant
1 More front-office FTE per 10,000 members	5.7 FTE	3.8 FTE	\$19
2 Lower third party costs per member in the front-office	\$3	\$7	-\$3
3 Lower costs per FTE			
Salaries and Benefits	\$89,528	\$107,427	
Building and Utilities	\$3,451	\$10,669	
HR	\$2,485	\$4,869	
IT Desktop, Networks, Telecom	<u>\$13,444</u>	<u>\$17,851</u>	
Total	\$108,908	\$140,818	-\$19
4 Higher support costs per member ¹			
Governance and Financial Control	\$9	\$8	
Major Projects	\$35	\$9	
IT Strategy, Database, Applications	\$29	\$15	
Actuarial, Legal, Audit, Other	<u>\$28</u>	<u>\$12</u>	
Total	\$100	\$44	\$56
Total			\$53

1. To avoid double counting, Governance and support costs are adjusted for differences in cost per FTE.

Cost trends:

Trend in Total Pension Administration Costs



Between 2013 and 2020:

- Your total pension administration cost per active member and annuitant increased 3.6% per annum.
- Your higher costs per member in FYE 2020 were due to two major factors 1) a multi-year project to implement the changes required by SB1049 and 2) a large increase in your State Government Service charges.
- Your higher costs per member in FYE 2016 & 2017 were similarly due to State Government Service Charges.
- During the same period, the average cost of your peers with 8 consecutive years of data increased 2.0% per annum.

Your total service score of 60 was below the peer median of 82.



Service is defined from a member's perspective. Higher service means more channels, faster turnaround times, more availability, more choice, better content and higher quality.

Higher service is not necessarily cost-effective. For example, the ability to answer the telephone 24 hours a day is higher service, but not cost effective.



Service Scores by Activity

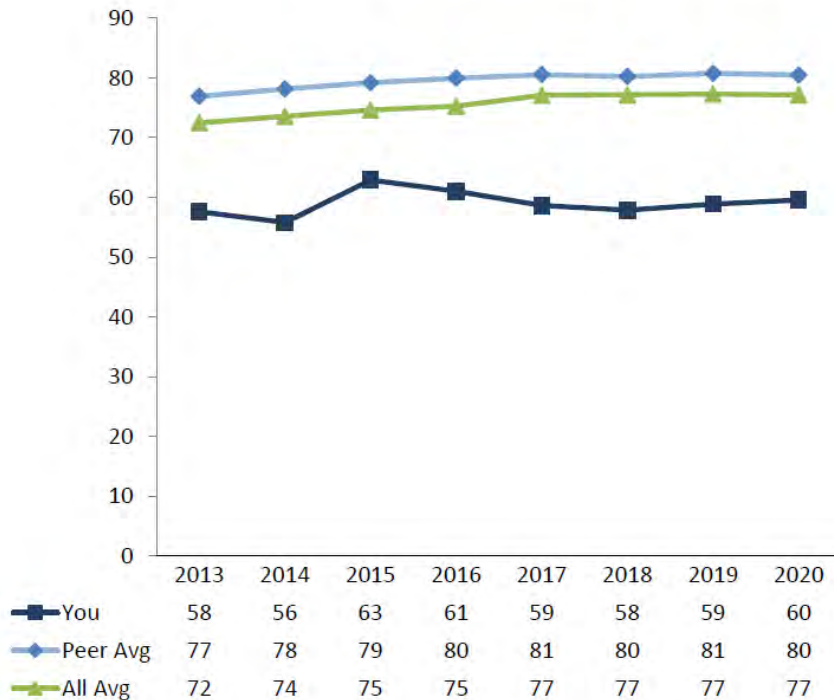
Activity	Weight	You	Peer Median
1. Member Transactions			
Pension Payments	10.0%	100	100
Pension Inceptions	7.4%	9	92
Refunds, Withdrawals, and Transfers-out	1.3%	5	95
Purchases and Transfers-in	3.1%	70	88
Disability	3.8%	82	86
2. Member Communication			
Call Center	21.0%	41	77
1-on-1 Counseling	7.4%	68	90
Member Presentations	6.5%	100	100
Written Pension Estimates	4.7%	25	93
Mass Communication			
Website	21.3%	77	82
News and Targeted Communication	2.8%	68	81
Member statements	4.7%	57	88
3. Other			
Member Experience Surveying	5.0%	10	35
Disaster Recovery	1.0%	74	99
Weighted Total Service Score	100%	60	82

Examples of key service measures included in your Service Score:

Select Key Service Metrics	You 2020	Peer Avg
<u>Member Contacts</u>		
• % of calls resulting in undesired outcomes (busy signals, messages, hang-ups)	11%	10%
• Average total wait time including time negotiating auto attendants, etc.	818 secs	179 secs
<u>Website</u>		
• Can members access their own data in a secure environment?	Yes	93% Yes
• Do you have an online calculator linked to member data?	Yes	93% Yes
• # of other website tools offered such as changing address information, registering for counseling sessions and/or workshops, viewing or printing tax receipts, etc.	11	14
<u>1-on-1 Counseling and Member Presentations</u>		
• % of your active membership that attended a 1-on-1 counseling session	1.9%	5.6%
• % of your active membership that attended a presentation	4.7%	5.9%
<u>Pension Inceptions</u>		
• What % of annuity pension inceptions are paid without an interruption of cash flow greater than 1 month between the final pay check and the first pension	5.8%	92.0%
<u>Member Statements</u>		
• How current is an active member's data in the statements that the member	5.0 mos	2.3 mos
• Do statements provide an estimate of the future pension entitlement?	No	73% Yes

Your service score increased from 58 to 60 between 2013 and 2020.

Trends in Total Service Scores



Trend analysis is based on systems that have provided 8 consecutive years of data (13 of your 15 peers and 38 of the 50 systems in the universe).

Historic scores have been restated to reflect changes in methodology. Therefore, your historic service scores may differ from previous reports.

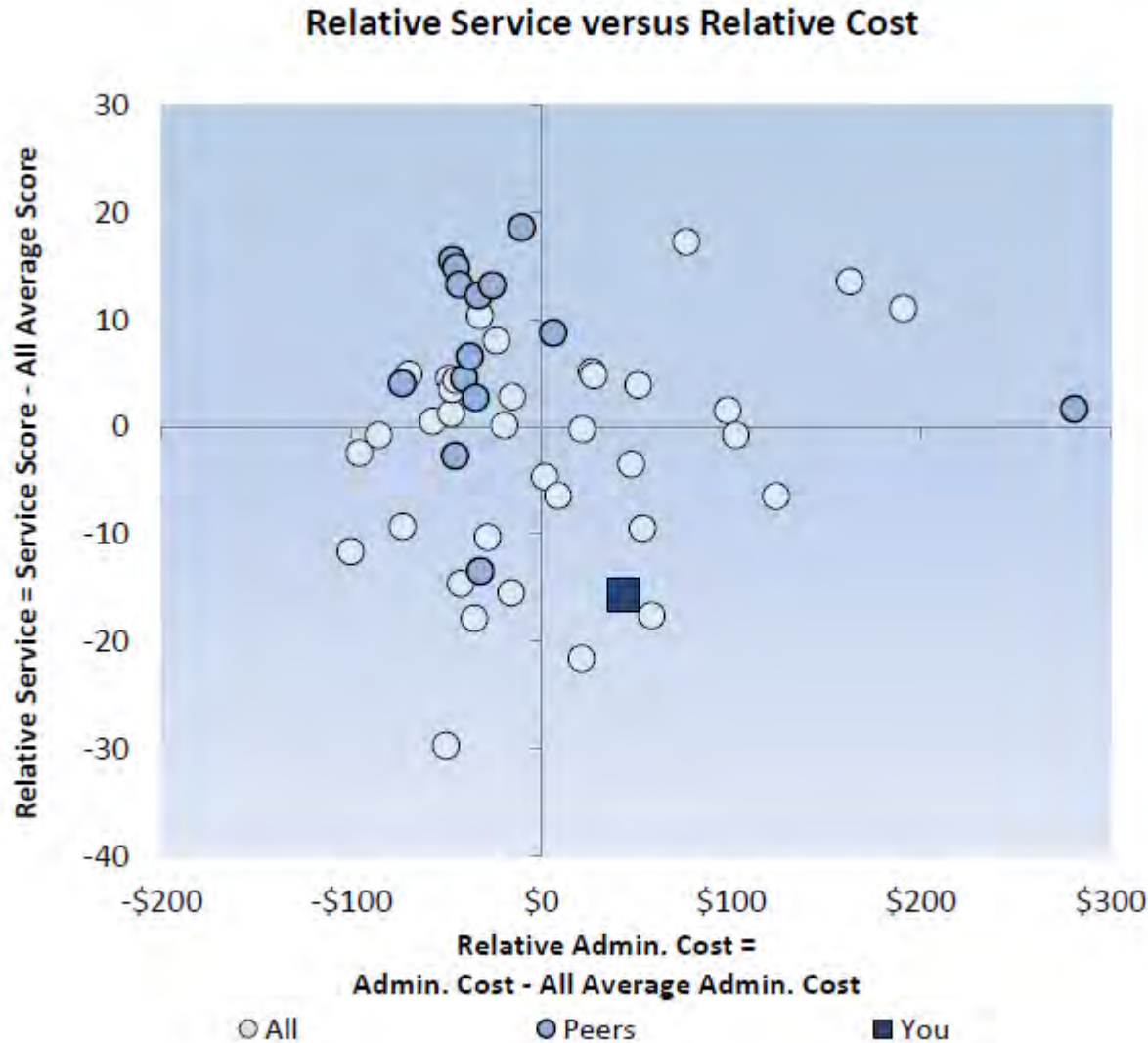
Changes that had a positive impact:

- Call Center: Your undesired call outcomes, such as abandoned calls in menu, in queue or on hold decreased from 18.4% to 10.6%, and you now notify the caller of the expected wait times.
- Website: You now offer educational videos and the capability to download or print tax receipts.
- Purchases: Your turnaround time for service credit purchase estimates decreased from 21 to 13 days.
- Disability: Your turnaround time for processing disability applications decreased from 4 months in 2013 to 1 month in 2020.

Changes that had a negative impact:

- Call Center: Your call wait time increased from 277 to 818 seconds and the 2 additional menu layers added in 2016.
- Estimates: Your weighted average turnaround time for providing written pension estimates and on-line pension estimates increased from 20 days in 2013 to 36 days in 2020 but has decreased from 65 days in 2019.

The relationship between service and pension administration cost in the CEM universe:





July 23, 2021
PERS Board Meeting Agenda

Administrative Rulemaking

1. Adoption of Optional/Alternative Retirement Plans
2. Adoption of Divorce Rules



Oregon

Kate Brown, Governor

Public Employees Retirement System

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July 23, 2021

TO: Members of the PERS Board

FROM: Stephanie Vaughn, Manager, Policy Analysis and Compliance Section

SUBJECT: Adoption of Rulemaking for Optional or Alternative Retirement Plans:

OAR 459-005-0310, *Date of Participation and Transfer of Employee Funds to the Optional Retirement Plan*

OAR 459-005-0350, *Membership Status of Persons in Concurrent Employment Eligible to Participate in an Optional or Alternative Retirement Plan*

OAR 459-005-0370, *Date of Participation and Transfer of Employee Funds to an Alternative Retirement Plan — OHSU*

OAR 459-010-0003, *Eligibility and Membership for the PERS Tier One/Tier Two Program*

OAR 459-075-0010, *Eligibility and Membership*

OVERVIEW

- Adopt Optional or Alternative Retirement Plans Rules
- Reason: Modifications needed to clarify PERS administration of optional or alternative retirement plans (“ORP” or “ARP”) to include community colleges and Harney County Health District (HCHD). Current OARs do not address ORP or ARP provisions for community colleges or HCHD even though they may offer ORP or ARPs.
- Policy Issue: No policy issues were identified.

BACKGROUND

Under Oregon law, a small group of participating public employers may sponsor their own retirement plans as an alternative to PERS for their eligible employees. The option is provided specifically by statute and is only available to the public universities, Oregon Health & Science University (OHSU), community colleges, and most recently Harney County Health District (HCHD). The non-PERS retirement plans are known as either optional retirement plans (ORP) or alternative retirement plans (ARP). Although the employer may offer more than one plan to its eligible employees, an eligible employee may only participate in one plan. Also, once an election is made to participate in any plan, that election cannot be changed during that period of employment, or any subsequent employment with that employer or employer group. PERS created administrative rules to address impacts to PERS membership for persons eligible to participate in an ORP or ARP in order to track elections, manage membership status changes, and effectuate any necessary employee fund transfers.

The current administrative rules are specific to statutory provisions for employees of the public universities (ORS 243.815) and OHSU (ORS 353.250). They do not cover community colleges (ORS 341.551) or HCHD (ORS 237.750). The proposed amendments broaden the rules to include these additional employers who are allowed to offer a different retirement plan in lieu of PERS, in order to bridge the gap between the statutes and rules. They also clarify that the membership standards provided in OAR 459-010-0003 and 459-075-0010 are used to establish membership, as well as to maintain active membership once membership has been established.

PUBLIC COMMENT AND HEARING TESTIMONY

No rulemaking hearing was held because the PERS building is closed to the public. The public comment period ended June 25, 2021, at 5:00 p.m. PERS received no public comment on the rules.

LEGAL REVIEW

The attached rules were submitted to the Department of Justice for legal review and any comments or changes are incorporated in the rules as presented for adoption.

IMPACT

Mandatory: No.

Impact: The amendments will provide employers who offer an ORP or an ARP as an alternative to PERS, and employees who elect ORP or ARP participation, with guidance on how PERS administers such elections.

Cost: There are no discrete costs attributable to the rules.

RULEMAKING TIMELINE

May 28, 2021	Staff began the rulemaking process by filing Notice of Rulemaking with the Secretary of State.
June 1, 2021	Secretary of State published the Notice in the Oregon Administrative Rules Database.
June 4, 2021	PERS Board notified that staff began the rulemaking process. Notice was sent to employers, legislators, and interested parties. Public comment period began.
June 25, 2021	Public comment period ended at 5:00 p.m.
July 23, 2021	Staff will propose adopting the rule modifications, including any changes resulting from public comment or reviews by staff or legal counsel.

BOARD OPTIONS

The PERS Board may:

1. Pass a motion to “adopt the Optional or Alternative Retirement Plans rules, as presented.”
2. Direct staff to make other changes to the rules or explore other options.

STAFF RECOMMENDATION

Staff recommends the PERS Board choose Option #1.

B.1. Attachment 1 – 459-005-0310-1, *Date of Participation and Transfer of Employee Funds to the Optional Retirement Plan*

B.1. Attachment 2 – 459-005-0350, *Membership Status of Persons in Concurrent Employment Eligible to Participate in an Optional or Alternative Retirement Plan*

B.1. Attachment 3 – 459-005-0370-1, *Date of Participation and Transfer of Employee Funds to an Alternative Retirement Plan — OHSU*

B.1. Attachment 4 – 459-010-0003, *Eligibility and Membership for the PERS Tier One/Tier Two Program*

B.1. Attachment 5 – 459-075-0010, *Eligibility and Membership*

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 005 – ADMINISTRATION**

1 **459-005-0310**

2 **Date of Participation and Transfer of Employee Funds to the Optional Retirement**
3 **Plan**

4 (1) Definitions. For the purposes of this rule:

5 (a) **“Member’s PERS account(s)” means any of the following accounts that**
6 **PERS has established for the member:**

7 **(A) A Tier 1 or Tier 2 member’s regular account established under ORS**
8 **238.250;**

9 **(B) A Tier 1 or Tier 2 member’s variable account established under ORS**
10 **238.260; and**

11 **(C) The member’s Individual Account Program (IAP) accounts established**
12 **under ORS 238A.350 and 238A.353, to the extent the member is vested in those**
13 **accounts.**

14 *[“IAP account” means the member’s employee, rollover, and employer accounts in*
15 *the Individual Account Program, to the extent the member is vested in those accounts*
16 *under ORS 238A.320.]*

17 (b) *“[OPSRP Pension account” means the member’s transferable interest in the*
18 *pension program under ORS 243.800(6)(d).]* **Optional retirement plan” (ORP) means**
19 **a retirement plan offered by a public university that is authorized under ORS**
20 **243.815, or an optional retirement plan offered by a community college that is**
21 **authorized under ORS 341.551.**

1 (c) “ORP provider” means the public university or community college offering
2 the ORP.

3 *[(c) “PERS member account” includes a “member account” as defined in ORS*
4 *238.005, an account established under ORS 238.440, and an account subject to ORS*
5 *238.095(4).]*

6 (2) The effective date of an election by an administrative or academic employee of a
7 public university, or an administrative employee of a community college, to
8 participate in an ORP *[the Optional Retirement Plan (ORP) authorized under ORS*
9 *243.800]* is the first day of the month following a period of six full calendar months of
10 employment in the qualifying *[an]* administrative or academic position.

11 (a) Unless otherwise agreed upon, notice of the effective date of the election will be
12 provided to PERS by the ORP provider *[public university]* within 30 days of the date of
13 the election.

14 (b) If the employee is a vested member of PERS who *[and]* elects to transfer eligible
15 funds consisting of amounts in the member’s PERS account(s) from PERS to the
16 ORP *[ptional Retirement Plan]* pursuant to ORS 243.815 *[00]*(6) or 341.551(5), the ORP
17 provider *[public university]* will forward to PERS copies *[a copy]* of the employee’s
18 signed ORP election form and the employee’s *[a]* written transfer request as part of the
19 notice *[from the employee at the time of the notification]* required in subsection (a) of this
20 section.

21 (3) If an employee *[who is a member of PERS]* requests a transfer of eligible funds
22 pursuant to section (2)(b) of this rule *[ORS 243.800(6)]*:

1 (a) PERS must transfer the funds to the ORP within the 60-day period following the
2 later of:

3 (A) The effective date of the employee’s election to participate in the ORP; or

4 (B) The effective date of the transfer.

5 (b) The effective date of a transfer is the first of the month in which PERS completes
6 reconciliation of the account to be transferred.

7 (c) PERS may not transfer funds to the ORP if the member is concurrently employed
8 by another PERS participating employer.

9

10 Stat. Auth: ORS 238A.450, 238.650

11 Stats. Implemented: ORS 243.815[00], 341.551

OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 005 – ADMINISTRATION

1 459-005-0350

2 **Membership Status of Persons in Concurrent Employment Eligible to Participate in**
3 **an Optional or Alternative Retirement Plan**

4 (1) **Definitions.** For the purpose of this rule:

5 **(a) “Alternative retirement plan” (ARP) means a retirement plan offered by**
6 **Oregon Health and Science University (OHSU) that is authorized under ORS**
7 **353.250, or a retirement plan offered by Harney County Health District (HCHD)**
8 **that is authorized under ORS 237.750.**

9 **(b) “C[c]oncurrent employment”** means employment with two or more different
10 employers participating in the Public Employees Retirement System (PERS) at the same
11 time.

12 **(c) “Controlled group” means a group of employers treated as a single**
13 **employer for purposes of maintaining qualified status under federal law.**

14 **(d) “Employer group” means the group of similarly situated employers, such as**
15 **the group of public university employers, or the group of community college**
16 **employers.**

17 **(e) “Optional retirement plan” (ORP) means a retirement plan offered by a**
18 **public university that is authorized under ORS 243.815, or a retirement plan offered**
19 **by a community college that is authorized under ORS 341.551.**

20 (2) If a person employed by a public university, **community college, HCHD,** or by
21 **OHSU***[the Oregon Health and Science University]* is concurrently employed by another

1 PERS [*or Oregon Public Service Retirement Plan (OPSRP)*] participating employer,
2 eligibility for PERS [*or OPSRP*] membership shall be based on the following:

3 (a) If the person elects to participate in an ORP [*Optional Retirement Plan offered*
4 *by a public university under ORS 243.800,*] or an ARP [*alternative retirement plan*
5 *offered by the Oregon Health and Science University under ORS 353.250,*] and is
6 concurrently employed with other PERS [*or OPSRP*] participating employers in a non-
7 qualifying position(s) as defined in OAR chapter 459, the person:

8 (A) Shall not be eligible to establish membership in PERS [*or OPSRP*] as an
9 employee of a public employer, the employer group, or any of the employers of the
10 employer’s controlled group, that offers the ORP in which the person has elected
11 participation [*university or the Oregon Health and Science University*], and

12 (B) Shall not be eligible to establish membership in PERS [*or OPSRP*] as an
13 employee of the other concurrent PERS employer or employers.

14 (b) If the person who elects to participate in an ORP [*Optional Retirement Plan*],
15 offered by a public university under ORS 243.815[*00*], or an ARP offered by OHSU or
16 HCHD [*alternative retirement plan offered by the Oregon Health and Science University*
17 *under ORS 353.250,*] and is concurrently employed with other PERS [*or OPSRP*]
18 participating employers [*is*] in a qualifying position(s) as defined in OAR chapter 459,
19 the person:

20 (A) Shall not be eligible to establish membership in PERS [*or OPSRP*] as an
21 employee of the[*a*] public employer or employer group that offers the ORP or ARP
22 in which the person has elected participation [*university or the Oregon Health and*
23 *Science University*]; and

1 (B) Shall establish membership in OPSRP as an employee of the other concurrent
2 PERS [*or OPSRP*] employer or employers, if all other membership conditions are met.

3 (c) If the person who elects to participate in an ORP offered by a community
4 college under ORS 341.551, is concurrently employed with other PERS
5 participating employers in a qualifying position(s) as defined in OAR chapter 459,
6 the person shall not be eligible to establish membership in PERS as an employee of
7 the public employer or employer group that offers the ORP in which the person has
8 elected participation, or as an employee of the other concurrent PERS employer or
9 employers, unless the person withdraws from the ORP.

10 (3) A member of PERS with concurrent employment who*[or OPSRP who is*
11 *concurrently employed and]* establishes PERS [*or OPSRP*] membership under the
12 provisions of paragraph (2)(b)(B) of this rule shall not be eligible to have any funds *[the*
13 *member's account]* transferred to an ORP*[Optional]* or ARP*[alternative retirement plan]*
14 under OAR 459-005-0310 or OAR 459-005-0370.

15

16 Stat. Auth: ORS 238.650

17 Stats. Implemented: ORS 237.750, 238.015, 243.815, 341.551*[775]* & 353.250

OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 005 – ADMINISTRATION

1 459-005-0370

2 Date of Participation and Transfer of Employee Funds to an Alternative Retirement
3 Plan [~~— OHSU~~]

4 (1) Definitions. For the purposes of this rule:

5 (a) “Alternative retirement plan” (ARP) means a retirement plan offered by the
6 Oregon Health and Science University (OHSU) that is authorized under
7 ORS 353.250, or an ARP offered by Harney County Health District (HCHD) that is
8 authorized under ORS 237.750.

9 (b) “ARP provider” means OHSU or HCHD.

10 (c) “Controlled group” means a group of employers treated as a single
11 employer for purposes of maintaining qualified status under federal law.

12 (d)[(1) For the purposes of this rule,] “Member’s PERS account(s)” means any of
13 the following:

14 (A)[(a)] The Tier 1 or Tier 2 member's regular account as defined in ORS 238.250,

15 (B)[(b)] The Tier 1 or Tier 2 member's variable account as defined in ORS 238.260,

16 (C)[(c)] The member’s Individual Account Program (IAP) accounts under ORS
17 238A.350, to the extent the member is vested in those accounts; and

18 (D)[(d)] The member’s Employee Pension Stability Account under 238A.353.

19 (2) If an employee elects to participate in an ARP*[alternative retirement plan*
20 *authorized under ORS 353.250]*:

1 (a) Unless otherwise agreed upon, the effective date of an election to participate in
2 an ARP*[alternative retirement plan]* shall be certified by the ARP provider*[Oregon*
3 *Health and Science University (OHSU)]* to PERS within 30 days of that effective date.

4 (b) If the employee is a vested member of PERS who*[, and is eligible for and]* elects
5 to transfer the balance of the member’s PERS account(s) to the ARP*[alternative*
6 *retirement plan]*, the ARP provider*[OHSU]* shall forward a copy of the*[that]* election to
7 transfer together with the participation certification required in subsection (a) of this
8 section.

9 (c) In the event an eligible employee is disabled or deceased and an election to
10 participate in an ARP*[alternative retirement plan]*, has not been signed by the employee,
11 the employee shall be deemed to be an active member of PERS, if all other membership
12 conditions *[of ORS 238.015]* are met.

13 (3) In accordance with ORS 238A.100 and 238A.300:

14 (a) An employee who is serving a six-month waiting period shall establish active
15 membership in accordance with ORS 238A.100 and 238A.300 unless PERS receives
16 notification of an election to participate in an ARP*[alternative retirement plan]* prior to
17 the completion of that six-month waiting period.

18 (b) Notwithstanding subsection (a) of this section, if PERS receives a notification of
19 an election to participate in an ARP*[alternative retirement plan]*, active membership in
20 PERS *[or OPSRP]* shall cease as of the effective date of the election.

21 (4) A vested PERS Chapter 238 Program or OPSRP member electing to
22 participate in an ARP*[alternative retirement plan]*,*[authorized under ORS 353.250, and]*
23 who is not concurrently an active member of PERS *[or OPSRP]* with another PERS *[or*

1 *OPSRP*] participating employer, may petition PERS to have the member’s PERS
2 account(s) transferred directly to the ARP*[an alternative retirement plan]*.

3 (a) A transfer of eligible funds under *[a member’s account as provided in]* this
4 section shall be transferred directly to the ARP*[alternative retirement plan]* by PERS and
5 shall not be made available to the employee while *[remaining in the]* employed by the
6 public employer, or the employer’s controlled group, that offers the ARP in which
7 the employee has elected participation *[of OHSU]*.

8 (b) A transfer of *[a]* eligible funds from the member’s PERS account(s) as provided
9 in subsection (a) of this section shall not include any reserves of any PERS-participating
10 employer.

11 (5) A PERS *[or OPSRP]* member electing to participate in an ARP*[alternative*
12 *retirement plan]* who has not separated from service in any position with the public
13 employer, or the employer’s controlled group, that offers the ARP in which the
14 employee has elected participation,*[at OHSU]*, shall *[be]* not be eligible to withdraw
15 any non-transferred*[the]* member’s PERS accounts, except as provided in section (4) of
16 this rule.

17 (6) A transfer of a member’s PERS account(s) to an ARP*[alternative retirement*
18 *plan established under the provisions of ORS 353.250]* shall be in compliance with all
19 applicable Internal Revenue Code provisions and related Treasury regulation governing
20 qualified pension plans. The transfer may occur only if the ARP*[alternative retirement*
21 *plan]*:

22 (a) Is a qualified plan under the Internal Revenue Code;

1 (b) Is capable of accepting funds transferred under the provisions of section (4) of
2 this rule without the transfer being treated as a taxable event under the Internal Revenue
3 Code; and

4 (c) Is willing to accept those transfers.

5 (7) The date of distribution of a member’s regular account defined in ORS 238.250,
6 variable account defined in ORS 238.260, and Employee Pension Stability Account
7 under ORS 238A.353 to an [ARP](#)[*alternative retirement plan, authorized under ORS*
8 *353.250*], as provided for in section (4) of this rule shall be the later of:

9 (a) The first of the calendar month following the date of receipt by PERS of a copy
10 of the election if such copy is received by PERS on or before the fifteenth of a calendar
11 month; or

12 (b) The first of the second calendar month following the date of receipt by PERS of a
13 copy of the election if such copy is received on or after the 16th of a calendar month.

14 (8) The date of distribution of a member’s IAP account(s) under ORS 238A.350 to
15 an [ARP](#)[*alternative retirement plan*], [*authorized under ORS 353.250,*] as provided for in
16 section (4) of this rule will be the date of the actual distribution.

17
18 Stat. Auth.: ORS 238.650 & 238A.450

19 Stats. Implemented: ORS [237.750](#), 238.015, [238A.100](#), [238A.300](#), & 353.250

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 010 – MEMBERSHIP**

1 **459-010-0003**

2 **Eligibility and Membership for the PERS Tier One/Tier Two Program**

3 (1) For the purpose of this rule:

4 (a) “Concurrent positions” means employment with two or more participating
5 employers in the same calendar year.

6 (b) “Partial year of hire” means a period in the calendar year the employee begins
7 employment after the first working day of the year, and continues employment through
8 December 31.

9 (c) “Partial year of separation” means a period in the calendar year the employee
10 separates from employment that begins on January 1 of the year and ends before the last
11 working day of the year.

12 (d) “Qualifying position” means a position designated by the employer as qualifying,
13 including a position in a partial year of hire, partial year of separation, or short segment,
14 except:

15 (A) A position or concurrent positions in which an employee performs at least 600
16 hours of service in a calendar year is qualifying regardless of employer designation.

17 (B) A position in a partial year of separation is qualifying regardless of employer
18 designation if the position is continued from an immediately preceding calendar year in
19 which the employee performed at least 600 hours of service in the position or concurrent
20 positions.

21 (C) A position with one employer in which the employee is employed for the entire
22 calendar year and fails to perform at least 600 hours of service in that position or

1 concurrent positions in the calendar year is non-qualifying regardless of employer
2 designation.

3 (e) “Service” means a period in which an employee:

4 (A) Is in an employer/employee relationship, as defined in OAR 459-010-0030; and

5 (B) Receives a payment of “salary,” as defined in ORS 238.005 or similar payment
6 from workers compensation or disability.

7 (f) “Short segment” means a period in the calendar year during which the employee
8 is hired after the first working day of the year, and separated from employment before the
9 last working day of the same calendar year.

10 (2) At the time an employee is hired, an employer must designate the employee’s
11 position as qualifying or non-qualifying. An employer must designate a position as
12 qualifying if the position is one in which an employee would normally perform at least
13 600 hours of service in a calendar year.

14 (3) Employer designation of a position as qualifying or non-qualifying must be
15 determined by PERS from information communicated to PERS by the employer. An
16 employer designation that is contrary to the provisions of subsection (1)(d) of this rule in
17 any calendar year will be reversed for that calendar year.

18 (4) Eligibility. An employee who was employed in a qualifying position before
19 August 29, 2003 by an employer participating in the PERS Chapter 238 Program was
20 eligible to become a member of that program if the employee:

21 (a) Began the six-month waiting period described in OAR 459-010-0035 before
22 August 29, 2003;

23

1 (b) Did not elect to participate in an optional or alternative retirement plan as
2 provided in ORS Chapters 243, 341, or 353; and

3 (c) Was not otherwise ineligible for membership.

4 (5) **Establishing** Membership. An employee who meets the requirements of section
5 (4) of this rule becomes a member of the PERS Chapter 238 Program on the first day of
6 the calendar month following the completion of the six-month waiting period described
7 in OAR 459-010-0035 provided that the employee is employed on that date by the same
8 employer that employed the employee throughout the waiting period.

9 **(6) Maintaining Membership. An employee who becomes a member of the**
10 **PERS Chapter 238 Program under section (5) is eligible for membership in the**
11 **system for service performed in a qualifying position on and after August 29, 2003,**
12 **unless the employee:**

13 **(a) Terminates their membership under ORS 238.095;**

14 **(b) Elects to participate in an optional or alternative retirement plan as**
15 **provided in ORS Chapters 237, 243, 341, or 353, and does not qualify for**
16 **concurrent service eligibility under OAR 459-005-0350; or**

17 **(c) Becomes otherwise ineligible for membership.**

18 Stat. Auth.: ORS 238.650

19 Stats. Implemented: ORS 238.005, 238.015, & 238A.025

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 075 – OPSRP PENSION PROGRAM**

1 **459-075-0010**

2 **Eligibility and Membership**

3 (1) Eligibility. An employee who is employed in a qualifying position on or after
4 August 29, 2003 by an employer participating in the OPSRP Pension Program is eligible
5 to become a member of that program, and maintain such membership, unless the
6 employee:

7 (a) Has established membership in the PERS Chapter 238 Program before August
8 29, 2003 under the terms of ORS 238A.025 and has not terminated membership in that
9 program under ORS 238.095;

10 (b) Is a judge member as defined in ORS 238.500;

11 (c) Elects to participate in an optional or alternative retirement plan as provided in
12 ORS Chapters 237, 243, 341, or 353; or

13 (d) Is otherwise ineligible for membership.

14 (2) Establishing Membership:

15 (a) An employee who meets the requirements in section (1) of this rule becomes a
16 member of the OPSRP Pension Program on the first day of the calendar month following
17 the employee's completion of a waiting period of six full calendar months of service in a
18 qualifying position with the same participating public employer. The six full calendar
19 months of service may not be interrupted by more than 30 consecutive working days.

20 (b) The waiting period begins on:

21 (A) The date the employee is hired, and includes the month of hire as a full calendar
22 month, if the date of hire is the first business day of the month;

1 (B) The first day of the month following the date of hire; or

2 (C) The first day of the month following the end date of an interruption of service of
3 more than 30 consecutive working days.

4 (c) In the event an employee is on an official leave of absence as described in OAR
5 459-010-0010, the period of absence shall not constitute an interruption of the waiting
6 period under subsection (a) of this section. The waiting period shall be extended by the
7 length of the leave of absence.

8 (d) Absence from service by an educational employee during periods that the
9 employing educational institution is not in session shall not constitute an interruption of
10 the waiting period under subsection (a) of this section.

11 (3) The provisions of this rule are retroactive to November 23, 2007.

12

13 Statutory/Other Authority: ORS 238A.450

14 Statutes/Other Implemented: ORS 238A.025, 238A.100 & OL 2007 Ch. 769

July 23, 2021
PERS Board Meeting Agenda

Administrative Rulemaking

1. Adoption of Optional/Alternative Retirement Plans
2. Adoption of Divorce Rules



Oregon

John A. Kitzhaber, M.D., Governor

Public Employees Retirement System

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July 23, 2021

TO: Members of the PERS Board
FROM: Stephanie Vaughn, Manager, Policy Analysis and Compliance Section
SUBJECT: Adoption of Rulemaking for Division of Benefits Rules Impacted by SB 1049:
OAR 459-005-0001, *Definitions*
OAR 459-045-0012, *OPSRP Pension Program Division of Benefits*
OAR 459-045-0014, *Individual Account Program (IAP) Division of Benefits*
OAR 459-045-0034, *General Administration for Individual Account Program (IAP)*

OVERVIEW

- Adopt Division of Benefits Rules Impacted by SB 1049
- Reason: Update rules pertaining to court-ordered divorce awards to clarify how Employee Pension Stability Accounts (EPSA) will be addressed in divorce awards.
- Policy Issue: No policy issues have been identified at this time.

BACKGROUND

During the 2019 Legislative Session, the Oregon Legislature passed Senate Bill (SB) 1049, which made significant amendments to ORS Chapters 238 and 238A. The Member Redirect portion of the bill requires that, effective July 1, 2020, a portion of the member 6% mandatory contribution will be directed to a new Employee Pension Stability Account (EPSA). The member's EPSA account will be used to fund benefits provided to the member or the member's beneficiary that are accrued by the member on and after July 1, 2020. If the balance of the EPSA account exceeds the cost of the benefits accrued on and after July 1, 2020, the excess amount will be refunded to the member or their IAP beneficiary in a lump sum.

The EPSA is an additional account under the Individual Account Program (IAP) statutes. The proposed amendments clarify that, as an account under the IAP, any division of the IAP in a divorce decree applies to the EPSA as well. Additionally, the EPSA is not used to determine the amount of the pension benefit; it is used only to help fund the benefits under the pension programs. The amendments to the rules explain that the EPSA is not subject to being awarded independently in a divorce decree. In the event there is no benefit to which the EPSA is applied or the balance of the EPSA exceeds the amount necessary to fund a benefit under the pension program, the member's alternate payee (AP) will receive the same percentage of the excess EPSA as the decree awards of the member's IAP.

Another provision of SB 1049 (2019) amended the withdrawal provisions for the OPSRP Pension Program. All members wishing to withdraw an account are required to withdraw all their PERS accounts ("withdraw from one, withdraw from all"); however, prior to SB 1049 (2019), OPSRP

Pension Program members were not allowed to withdraw from the OPSRP Pension Program if the net present value of their future pension was greater than \$5,000. Under SB 1049 (2019), OPSRP Pension Program members who withdraw their IAP account under ORS 238A.375, terminate their membership in the system, meaning both the IAP and the OPSRP Pension Program.

Staff recognized that the change in the OPSRP withdrawal provision could negatively impact a divorced member's AP. If an OPSRP member whose pension benefit is divided by a divorce decree were to withdraw their IAP, under the new withdrawal provisions, that withdrawal would terminate the member's membership in both the IAP and the OPSRP Pension Program, thereby forfeiting any and all pension benefits for themselves and their AP. The amendments to the rules establish a new requirement for divorce decrees of OPSRP members and the default administration of a decree that is silent regarding the new requirement. If all or a portion of a member's OPSRP pension benefit is awarded in a decree, the decree must also state whether or not the member may withdraw from the IAP under 238A.375. If the decree is silent on the ability to withdraw the IAP, the member will not be able to withdraw from the system.

PUBLIC COMMENT AND HEARING TESTIMONY

No rulemaking hearing was held because the PERS building is closed to the public. The public comment period ended June 25, 2021, at 5:00 p.m. PERS received no public comment on the rules.

LEGAL REVIEW

The attached draft rules were submitted to the Department of Justice for legal review and any comments or changes are incorporated in the rules as presented for adoption.

IMPACT

Mandatory: No, but statute authorizes the board to update its rules as necessary to implement Member Redirect.

Impact: Members, their attorneys, employers, and staff will benefit from clear and consistent rules.

Cost: There are no discrete costs attributable to the rules.

RULEMAKING TIMELINE

May 28, 2021	Staff began the rulemaking process by filing Notice of Rulemaking with the Secretary of State.
June 1, 2021	Secretary of State published the Notice in the Oregon Administrative Rules Database.
June 4, 2021	PERS Board notified that staff began the rulemaking process. Notice was sent to employers, legislators, and interested parties. Public comment period began.

June 25, 2021

Public comment period ended at 5:00 p.m.

July 23, 2021

Staff will propose adopting the rule modifications, including any changes resulting from public comment or reviews by staff or legal counsel.

BOARD OPTIONS

The PERS Board may:

1. Pass a motion to “adopt the Division of Benefits rules, as presented.”
2. Direct staff to make other changes to the rules or explore other options.

STAFF RECOMMENDATION

Staff recommends the PERS Board choose Option #1.

B.2. Attachment 1 – 459-005-0001-2, *Definitions, Generally*

B.2. Attachment 2 – 459-045-0012-2, *OPSRP Pension Program Division of Benefits*

B.2. Attachment 3 – 459-045-0014-4, *Individual Account Program (IAP) Division of Benefits*

B.2. Attachment 4 – 459-045-0034-2, *General Administration for Individual Account Program (IAP)*

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 045 – DOMESTIC RELATIONS ORDERS**

1 **459-005-0001**

2 **Definitions, Generally**

3 The words and phrases used in OAR Chapter 459 have the same meaning given
4 them in ORS chapters 237, 238, 238A, and 243 unless otherwise indicated. Specific and
5 additional terms used in OAR Chapter 459 generally are defined as follows unless
6 context requires otherwise:

7 (1) “Ad hoc” means one-time for a specific purpose, case, or situation without
8 consideration of a broader application.

9 (2) “After-tax” contributions means:

10 (a) Member contributions required or permitted by ORS 238.200 or 238.515, which
11 a participating employer has not elected to “pick up,” assume or pay in accordance with
12 ORS 238.205 and 238.515(b). “After-tax” contributions are included in the member’s
13 taxable income for purposes of state or federal income taxation at the time paid to PERS.
14 “After-tax” contributions are included in computing FAS and in computing the
15 employer’s contributions paid to PERS.

16 (b) Payments made by a member to PERS for the purchase of additional benefits.

17 (3) “Before-tax” contributions means member contributions required or permitted by
18 ORS 238.200 or 238.515, which a participating employer has elected to “pick up,”
19 assume or pay in accordance with ORS 238.205 and 238.515(b). “Before-tax”
20 contributions are not included in the member’s taxable income for purposes of state or

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**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 005 – ADMINISTRATION**

1 federal income taxation at the time paid to PERS. “Before-tax” contributions are included
2 in:

3 (a) Computing final average salary; and

4 (b) Computing the employer’s contributions paid to PERS if the employer has
5 elected to “pick up” the member contributions.

6 (4) “Business day” means a day Monday through Friday when PERS is open for
7 business.

8 (5) “Calendar month” means a full month beginning with the first calendar day of a
9 month and ending on the last calendar day of that month.

10 (6) “Calendar year” means 12 consecutive calendar months beginning on January 1
11 and ending on December 31.

12 (7) “Casual worker” means an individual engaged for incidental, occasional,
13 irregular, or unscheduled intervals or for a period of less than six consecutive calendar
14 months.

15 (8) “Contributions” means any contributions required or permitted pursuant to ORS
16 238.200 or 238.515.

17 (9) “Differential wage payment” means a payment made on or after January 1, 2009:

18 (a) By an employer to a member with respect to any period during which the
19 member is performing service in the uniformed services, as defined in USERRA, while
20 on active duty for a period of more than 30 consecutive days; and

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**OREGON ADMINISTRATIVE RULE
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1 (b) That represents all or a portion of the wages the member would have received
2 from the employer if the member were performing service for the employer.

3 (10) “Effective date of withdrawal” means the later of:

4 (a) The first day of the calendar month in which PERS receives a completed
5 application from a member who requested a withdrawal; or

6 (b) The first day of the second calendar month following the calendar month in
7 which the member terminated employment with all participating employers and all
8 employers in a controlled group with a participating employer.

9 (11) “Effective retirement date” means:

10 (a) For Tier One and Tier Two service retirements, the date described in OAR 459-
11 013-0260.

12 (b) For Tier One and Tier Two disability retirements, the date described in OAR
13 459-015-0001.

14 (c) For OPSRP Pension Program service retirements, the date described in OAR
15 459-075-0175.

16 (12) “Elected official” means an individual who is a public official holding an
17 elective office or an appointive office with a fixed term for the state or for a political
18 subdivision of the state who has elected to participate in PERS pursuant to ORS
19 238.015(5).

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OREGON ADMINISTRATIVE RULE
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1 (13) “Emergency worker” means an individual engaged in case of emergency,
2 including fire, storm, earthquake, or flood.

3 (14) “Employee” has the same meaning as provided in ORS 238.005 and shall be
4 determined in accordance with OAR 459-010-0030.

5 (a) For the purposes of ORS 238.005 to 238.750 the term “employee” includes
6 public officers whether elected or appointed for a fixed term.

7 (b) The term “employee” does not include:

8 (A) A member of the governing board of a political subdivision unless the individual
9 qualifies for membership under ORS 238.015.

10 (B) An individual who performs services for a public employer as a contractor in an
11 independently established business or as an employee of that contractor as determined in
12 accordance with OAR 459-010-0032.

13 (C) An individual providing volunteer service to a public employer without
14 compensation for hours of service as a volunteer, except for volunteer firefighters who
15 establish membership in accordance with ORS 238.015(6).

16 (15) **“Employee Pension Stability Account” and “EPSA” mean the account**
17 **established in ORS 238A.353.** (16) “Employer contribution account” means a record of
18 employer contributions to the Fund, as required by ORS 238.225(1), and investment
19 earnings attributable to those contributions, that the Board has credited to the account
20 after deducting amounts required or permitted by ORS Chapter 238.

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OREGON ADMINISTRATIVE RULE
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1 **(17)**~~**(16)**~~ “Employment” is compensated service to a participating employer as an
2 employee whose:

3 (a) Period or periods of employment includes only the actual hours of compensated
4 service with a participating employer as an employee; and

5 (b) Compensated service includes, but is not limited to, paid vacation, paid sick
6 leave, or other paid leave.

7 **(18) “EPSA excess” means any amount remaining after a member’s EPSA has**
8 **been applied by the board to pay the costs of the pension or other retirement**
9 **benefits payable to the member or the member’s beneficiary under ORS chapters**
10 **238 and 238A that accrue on or after July 1, 2020. In the event of an account**
11 **withdrawal or when there is no eligible benefit against which to apply the EPSA, the**
12 **entire account is considered EPSA excess.**

13 **(19)**~~**(17)**~~ “Estimate” means a projection of benefits prepared by staff of a service or
14 disability retirement allowance, a death or a refund payment. An estimate is not a
15 guarantee or promise of actual benefits that eventually may become due and payable, and
16 PERS is not bound by any estimates it provides.

17 **(20)**~~**(18)**~~ “FAS” and “final average salary” have the same meaning as provided in:

18 (a) ORS 238.005 for all PERS Tier One members;

19 (b) ORS 238.435(2) for all PERS Tier Two members who are not employed by a
20 local government as defined in ORS 174.116;

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**OREGON ADMINISTRATIVE RULE
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1 (c) ORS 238.435(4) for all PERS Tier Two members who are employed by a local
2 government as defined in ORS 174.116; or

3 (d) ORS 238.535(2) for judge members of PERS for service as a judge.

4 **(21)**~~[(19)]~~ “General service member” means membership in PERS as other than a
5 judge member, a police officer, a firefighter, or a legislator.

6 **(22)**~~[(20)]~~ “Good cause” means a cause beyond the reasonable control of an
7 individual. “Good cause” exists when it is established by satisfactory evidence that
8 factors or circumstances are beyond the reasonable control of a rational and prudent
9 individual of normal sensitivity, exercising ordinary common sense.

10 **(23)**~~[(21)]~~ “Independent contractor” means an individual or business entity that is
11 not subject to the direction and control of the employing entity as determined in
12 accordance with OAR 459-010-0032.

13 **(24)**~~[(22)]~~ “Judge member” has the same meaning as provided in ORS 238.500(3).
14 For purposes of this chapter, active, inactive, and retired membership of a judge member
15 shall have the same meaning as provided in ORS 238.005.

16 **(25)**~~[(23)]~~ “Legislator” means an individual elected or appointed to the Oregon
17 Legislative Assembly who has elected to participate in PERS for their legislative service.

18 **(26)**~~[(24)]~~ “Member cost” means after-tax member contributions and payments
19 made by or on behalf of a member to purchase additional benefits.

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1 **(27)**~~[(25)]~~ “Participating employer” means a public employer who has one or more
2 employees who are active members of PERS.

3 **(28)**~~[(26)]~~ “PERS” and “system” have the same meaning as the Public Employees
4 Retirement System in ORS 238.600.

5 **(29)**~~[(27)]~~ “Public university” means a public university with a governing board as
6 listed in ORS 352.002.

7 **(30)**~~[(28)]~~ “Qualifying position” has the same meaning as provided in ORS 238.005
8 and OAR 459-010-0003.

9 **(31)**~~[(29)]~~ “Regular account” means the account established under ORS 238.250 for
10 each active and inactive member who has made contributions to the Fund or the account
11 of an alternate payee of such a member.

12 **(32)**~~[(30)]~~ “Salary” has the same meaning as provided in ORS 238.005.

13 (a) “Salary” includes a differential wage payment, as defined in this rule.

14 (b) For a Tier One member, a lump sum payment for accrued vacation pay is
15 considered salary:

16 (A) In determining employee and employer contributions.

17 (B) In determining final average salary for the purpose of calculating PERS benefits.

18 (c) For a Tier Two member, a lump sum payment for accrued vacation pay:

19 (A) Is considered salary in determining employee and employer contributions.

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**OREGON ADMINISTRATIVE RULE
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1 (B) Is not considered salary in determining final average salary for the purpose of
2 calculating PERS benefits.

3 **(33)**~~[(31)]~~ “Seasonal worker” means an individual whose engagement is
4 characterized as recurring for defined periods that are natural divisions of the employer’s
5 business cycle or services.

6 **(34)**~~[(32)]~~ “Staff” means the employees of the Public Employees Retirement System
7 as provided for in ORS 238.645.

8 **(35)**~~[(33)]~~ “Tier One member” means a member who established membership in the
9 system before January 1, 1996, as defined in ORS 238.430(2).

10 **(36)**~~[(34)]~~ “Tier Two member” means a member who established membership in the
11 system on or after January 1, 1996, in accordance with ORS 238.430.

12 **(37)**~~[(35)]~~ “USERRA” means the federal Uniformed Services Employment and
13 Reemployment Rights Act of 1994, 38 U.S.C. 4301-4334, as in effect on the effective
14 date of this rule.

15 **(38)**~~[(36)]~~ “Vacation pay” means a lump sum payment for accrued leave in a
16 Vacation Leave Program provided by a public employer which grants a period of
17 exemption from work for rest and relaxation with pay, and does not include:

18 (a) Sick leave programs;

19 (b) Programs allowing the accumulation of compensatory time, holiday pay or other
20 special leaves unless the public employer’s governing body indicates by resolution,

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1 ordinance, or other legislative process, that such leave is intended to serve as additional
2 vacation leave; and

3 (c) Other programs, such as a Personal Time Off (PTO) plan, which are a
4 combination of vacation, sick, bereavement, personal and other leaves of pay as defined
5 and described by a public employer unless the employer has a written policy that clearly
6 indicates the percentage of the plan that represents vacation leave. If the employer’s PTO
7 has a cash option, the employer must report to PERS the amount of any lump sum pay-
8 off for the percentage that represents vacation leave.

9 **(39)**~~[(37)]~~ “Variable account” and “member variable account” mean the account in
10 the Variable Annuity Account established under ORS 238.260(2) for each active and
11 inactive member who has elected to have amounts paid or transferred into the Variable
12 Annuity Account.

13 **(40)**~~[(38)]~~ “Variable Annuity Account” means the account established in ORS
14 238.260(2).

15 **(41)**~~[(39)]~~ “Volunteer” means an individual who performs a service for a public
16 employer, and who receives no compensation for the service performed. The term
17 “volunteer” does not include an individual whose compensation received from the same
18 public employer for similar service within the same calendar year exceeds the reasonable
19 market value for such service.

20 **(42)**~~[(40)]~~ “Working day” means a day that the employer is open for business.

21 Unless the employer communicates this information to PERS, PERS will presume an

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1 employer’s “working day” is the same as a “business day,” as defined in section (4) of
2 this rule.

3 **(43)**~~(41)~~ “Year” means any period of 12 consecutive calendar months.

4
5 Stat. Auth.: ORS 238.650

6 Stats. Implemented: ORS chapters 237, 238, 238A & 243

7 Hist.: PERS 2-1998, f. & cert. ef. 3-16-98; PERS 3-2003(Temp), f. 6-13-03, cert. ef. 7-1-
8 03 thru 12-26-03; PERS 12-2003, f. & cert. ef. 11-14-03; PERS 14-2003, f. & cert. ef.
9 11-20-03; PERS 15-2003, f. & cert. ef. 12-15-03; PERS 9-2004(Temp), f. 4-15-04 cert.
10 ef. 5-21-04 thru 7-1-04; PERS 15-2004, f. & cert. ef. 6-15-04; PERS 19-2005, f. 11-1-05,
11 cert. ef. 1-1-06; PERS 4-2006, f. & cert. ef. 4-5-06; f. 2-12-09 & cert. ef. 1-1-09; f. &
12 cert. ef. 5-28-2010; f. & cert. ef. 2-1-12; f. & cert. ef. 9-29-14; f. & cert. ef. 11-20-15; f.
13 & cert. ef. 5-27-16

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 045 – DOMESTIC RELATIONS ORDERS**

1 **459-045-0012**

2 **OPSRP Pension Program Division of Benefits**

3 (1) A final court order that provides for a division of pension benefits or disability
4 benefits must use a method described in this rule.

5 (a) The method must be identified on PERS divorce forms.

6 (b) The PERS divorce forms must be attached as exhibits to the court order, and
7 incorporated by reference in the court order.

8 (2) Award of Pension Benefits (Non-Retired Member). If a final court order awards
9 an alternate payee a reduction or deduction amount from the monthly pension benefit that
10 shall be paid in the future to the member, a court order must provide:

11 (a) The date of annulment, separation, divorce, or property settlement. If no date is
12 provided, PERS will use the date the judge signed the court order.

13 (b) Whether the award is a reduction or deduction from the member's monthly
14 pension. If the award is a reduction, the court order must provide whether the alternate
15 payee is eligible to elect a separate benefit option at any time after the member reaches
16 earliest retirement eligibility.

17 (c) The method by which the monthly award is to be calculated. One of the
18 following methods must be used:

19 (A) A percentage, expressed with up to two decimal points; or

20 (B) A dollar amount; or

21 (C) A percentage of the married time ratio. If this method is used, the court order
22 must provide:

- 1 (i) The percentage, expressed with up to two decimal points; and
- 2 (ii) The years and months of retirement credit accrued by the member during a
- 3 specified period or while married to the alternate payee.
- 4 (d) If there is a specific end date or dollar amount limit to the award, and what that
- 5 date or limit is.
- 6 (e) Whether the member must select a specific benefit payment option at retirement.
- 7 (f) Whether the member must designate the alternate payee as beneficiary.
- 8 (g) Whether the alternate payee and any minor children are awarded a percentage of
- 9 any pre-retirement death benefit pursuant to ORS 238A.230.

10 **(h) Whether a member may withdraw from the Individual Account Program**
11 **pursuant to ORS 238A.375, thereby cancelling the member’s membership in the**
12 **Public Employees Retirement System under ORS 238A.120 and forfeiting any and**
13 **all accrued pension benefits for both member and alternate payee. If a decree**
14 **administered under this paragraph (2) is silent on a member’s ability to withdraw**
15 **from the Individual Account Program (IAP) pursuant to ORS 238A.375, the**
16 **member will not be permitted to withdraw their IAP.**

17 **[(h)](i)** Whether the alternate payee award continues or ends after the member retires
18 if:

- 19 (A) The member dies before the alternate payee and the member’s beneficiary is not
- 20 the alternate payee.
- 21 (B) If the alternate payee dies before the member.

1 (3) Award of Pension Benefits (Retired Member). If a final court order awards an
2 alternate payee an amount to be paid from a retired member’s monthly pension, the court
3 order must provide:

4 (a) The date of annulment, separation, divorce, or property settlement. If no date is
5 provided, PERS will use the date the judge signed the court order.

6 (b) Whether the award is a reduction or deduction from the member’s monthly
7 pension.

8 (c) The method by which the monthly award is to be calculated. One of the
9 following methods must be used:

10 (A) A percentage, expressed with up to two decimal points; or

11 (B) A dollar amount.

12 (d) If there is a specific end date or dollar amount limit to the award, and what that
13 date or limit is.

14 (e) Whether the member may or must change the beneficiary designation. If the
15 member’s beneficiary is changed, the member’s pension must be recalculated.

16 (f) Whether a member, who elected to receive their pension under ORS
17 238A.190(1)(b) or (d), is allowed to receive the higher pension benefit under ORS
18 238A.190(2)(b).

19 (g) Whether the alternate payee will be the sole beneficiary or any remaining share
20 not awarded to the alternate payee shall be paid to the member’s secondary beneficiary if
21 the member dies before the alternate payee and the alternate payee was the member’s
22 beneficiary.

23 (h) Whether an alternate payee award continues or ends if:

1 (A) The member dies before the alternate payee and the member’s beneficiary is not
2 the alternate payee.

3 (B) The alternate payee dies before the member.

4 (4) Award of Disability Benefits. If a final court order awards an alternate payee an
5 amount to be paid from the monthly disability benefit that is being paid or may be paid in
6 the future to the member, the court order must provide:

7 (a) The date of annulment, separation, divorce, or property settlement. If no date is
8 provided, PERS will use the date the judge signed the court order.

9 (b) Whether the award is a reduction or deduction from the member’s monthly
10 disability benefit.

11 (c) A percentage, expressed with up to two decimal points, of the member’s monthly
12 disability benefit that is awarded to the alternate payee.

13

14 Statutory/Other Authority: ORS 238.465, 238.650 & 238A.450

15 Statutes/Other Implemented: ORS 238.465

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 045 – DOMESTIC RELATIONS ORDERS**

1 **459-045-0014**

2 **Individual Account Program (IAP) Division of Benefits**

3 (1) A final court order that provides for a division of benefits must use a method
4 described in this rule.

5 (a) The method must be identified on PERS divorce forms.

6 (b) The PERS divorce forms must be attached as exhibits to the court order, and
7 incorporated by reference in the court order.

8 (2) Award of IAP Alternate Payee Account (Non-Retired Member). If a final court
9 order provides an award of an alternate payee account to be established from the account
10 balance of a member, the court order must provide:

11 (a) The date of annulment, separation, divorce, or property settlement. If no date is
12 provided, PERS will use the date the judge signed the court order.

13 (A) The separate account will be established from the member’s account balance as
14 of December 31 of the calendar year before this date unless:

15 (i) A prior year is provided in the court order; or

16 (ii) The date is December 31.

17 (B) If the date in subsection (a) of this section is other than December 31,
18 contributions made during that calendar year will not be included in the calculation of the
19 alternate payee’s award.

20 (b) That the separate account be established in an alternate payee’s name.

21 (c) The method by which the award is to be calculated. One of the following
22 methods must be used:

1 (A) A percentage, expressed with up to two decimal points; or

2 (B) A dollar amount.

3 (d) Whether the member may change their pre-retirement beneficiary designation, if
4 the alternate payee was named as beneficiary.

5 (3) Award of IAP Alternate Payee Account (Retired Member). If a final court order
6 provides an award of an alternate payee account to be established from the remaining
7 account balance of a retired member receiving installment payments, to be effective on
8 the date that PERS establishes the alternate payee account, the court order must provide:

9 (a) The date of annulment, separation, divorce, or property settlement. If no date is
10 provided, PERS will use the date the judge signed the court order.

11 (b) That a separate account be established in an alternate payee's name.

12 (A) The effective date of the alternate payee account shall be as soon as
13 administratively feasible after PERS receives and approves a final court order as
14 administrable.

15 (B) The alternate payee will be notified when the account has been established.

16 (C) The alternate payee account shall be distributed in a lump sum payment.

17 (D) Any installment payments paid to the member before the alternate payee account
18 is established will not be included in the award.

19 (c) The award as a percentage, expressed with up to two decimal points.

20 (d) Whether the member may or must change their beneficiary designation.

21 **(4) Employee Pension Stability Accounts are accounts under the IAP and are**
22 **not independently awardable in a divorce proceeding. Any EPSA excess, as defined**

1 in 459-005-0001, will be paid to the member, beneficiary, and/or alternate payee in
2 the same proportion as the IAP division of benefits.

3 Statutory/Other Authority: ORS 238.465, 238.650, 238A.353 & 238A.450

4 Statutes/Other Implemented: ORS 238.465

OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 045 – DOMESTIC RELATIONS ORDERS

1 **459-045-0034**

2 **General Administration for Individual Account Program (IAP)**

3 (1) A percentage award will be applied against the member’s account(s) to the extent
4 the member is vested in the account(s). A dollar amount will be applied on a pro-rata
5 basis against the member’s account(s) to the extent the member is vested in the
6 account(s).

7 (2) An alternate payee account shall be credited with earnings and losses in
8 accordance with OAR chapter 459, division 007.

9 **(3) Employee Pension Stability Accounts are accounts under the IAP and are**
10 **not independently awardable in a divorce proceeding. Any EPSA excess, as defined**
11 **in 459-005-0001, will be paid to the member, beneficiary, and/or alternate payee in**
12 **the same proportion as the IAP division of benefits.**

13 ~~(3)~~**(4)**(a) At the time of distribution to the alternate payee, PERS shall provide the
14 alternate payee a written summary of the information used in making the calculation for
15 the distribution of benefits. An alternate payee may dispute the accuracy of the
16 information used in making the calculation of the distribution of benefits by filing a
17 written notice with PERS by the later of:

18 (A) The 30th day after the date on which the information and calculation is provided
19 to the alternate payee under this section; or

20 (B) The 30th day after the issue date of the first distribution of benefits to the
21 alternate payee.

1 (b) Upon receiving a notice as described above, PERS shall determine the accuracy
2 of the disputed information and make a written decision either affirming the accuracy of
3 the original information and calculation or changing the calculation using corrected
4 information. PERS shall provide the alternate payee with a copy of the decision and a
5 written explanation of any applicable statutes and rules.

6 (c) This section does not limit any authority of PERS to correct an incorrect
7 calculation of any benefit.

8 ~~[(4)]~~ (5) If an alternate payee was a partner of the member, the award to the alternate
9 payee is a distribution to the member for federal tax purposes. Therefore, an award of an
10 alternate payee account as described in OAR 459-045-0014(2) and (3) will not be
11 distributed until such distribution would not jeopardize the plan's tax qualified status.

12

13 Statutory/Other Authority: ORS 238.465, 238.650 & 238A.450

14 Statutes/Other Implemented: ORS 238.465 & 238A.450

Action and Discussion Items

1. Legislative Session Review and 2021-23 Budget Update
 - a. Session Overview and 2022 Preview
 - b. 2021-2023 Budget
2. SB 1049 Implementation Update
3. Valuation Methods and Assumptions Including Assumed Rate of Return
4. Notice of Assumed Rate OAR



Oregon

Kate Brown, Governor

Public Employees Retirement System

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July 23, 2021

TO: Members of the PERS Board
FROM: Heather Case, Senior Policy Advisor
SUBJECT: Legislative Update

2021 LEGISLATIVE SESSION — BILLS IMPACTING PERS

The 2021 Legislative Session began on February 19 and concluded June 26. The following bills were passed by the Legislature and signed by the Governor (or expected to be signed). The agency is in the process of implementing these changes to our statutes. Information will be provided to members and employers as we resolve details of implementing these changes.

Additional information is available on the legislative website:

<https://www.oregonlegislature.gov>

Bill Number	Brief Summary
Technical Changes	
House Bill (HB) 2457	<i>Relating to connection to federal tax law</i> — Updates connection date to federal Internal Revenue Code and other provisions of tax law to April 1, 2021. Codifies federal increase of required minimum distribution age to 72.
Program Changes	
Senate Bill (SB) 41	<i>Relating to employees of the State Board of Parole and Post-Prison Supervision</i> — Maintains certification of county probation officers when they become employed by the State Board of Parole and Post-Prison Supervision.
SB 111	<i>Relating to public employee retirement</i> — Technical changes to SB 1049, change to definition of salary for OPSRP members, increase in optional death benefits for Tier 1/Tier 2 members, and death benefits for OPSRP members, and increased retroactivity for new definition of salary for OHSU and charter schools.
SB 112	<i>Relating to public employee retirement</i> — Aligns definition of employee with Internal Revenue Code.
SB 113	<i>Relating to public employee retirement</i> — Provides that PERS may charge participating public employer accrued earnings for late payment of employee and employer contributions to individual account program.
SB 297	<i>Relating to judicial marshals</i> — Provides that judicial marshal certified by Department of Public Safety Standards and Training qualifies as police officer under PERS.

HB 2875	<i>Relating to public employee retirement</i> — Combines HB 2375, HB 2875, and HB 2867. Provides for restoration of retirement credit for member of Oregon Public Service Retirement Plan who forfeited retirement credit due to lack of service at end of 2020; provides that certain employee of State Fire Marshal qualifies as firefighter for purposes of Public Employees Retirement System; and directs Public Employees Retirement Board to initiate, resume, or suspend payment of certain increased benefits under Public Employees Retirement System on first day of calendar quarter following receipt of notice by board that benefit payments are or are not subject to Oregon personal income tax.
HB 2906	<i>Relating to employee contributions to the Public Employees Retirement System</i> — Increases Member Redirect monthly threshold from \$2,500 per month to \$3,333 per month effective January 1, 2022.
Budget Bill	
SB 5536	<i>Relating to the financial administration of the Public Employees Retirement System</i> — Limits certain biennial expenditures from fees, moneys, or other revenues, including Miscellaneous Receipts but excluding lottery funds and federal funds, collected, or received by Public Employees Retirement System.

PERS BUDGET BILL

Senate Bill (SB) 5366, the PERS budget bill, was signed by the Governor on June 1, 2021. It becomes effective July 1, 2021. Meeting video and materials regarding this bill are available at:

<https://olis.oregonlegislature.gov/liz/2021R1/Measures/Testimony/SB5536>

The budget bill also brings with it budget notes, which are usually reporting requirements for the agency. This budget bill contains two budget notes. The first requests continued reporting to the Legislature regarding SB 1049 implementation, and the second is a new requirement to report to Legislative Fiscal Office (LFO) in 2022 with the close-out report of our data center migration and backup data center projects.

2021 INTERIM AND 2022 LEGISLATIVE SESSION

Interim legislative committees will meet in mid-September, November, and January before the 2022 Legislative Session is convened. We are not currently aware of presentations that must be made during the legislative meetings, but we will be prepared to do so if asked.

The budget notes in SB 5536 require PERS and DAS to report before the 2022 Legislative Session on the implementation of SB 1049 to the Joint Committee on Information Management and Technology. PERS also will be required to report to the LFO no later than January 2022 with a comprehensive close-out report on the Production Data Center Migration Project and the Backup Data Center Project.

Currently, PERS does not have plans to introduce legislation during the short 2022 Legislative Session. However, in the fall, PERS will begin planning to bring the Board legislative concepts

for the 2023 long session and will present those for the Board's consideration in the spring of 2022.

Action and Discussion Items

1. Legislative Session Review and 2021-23 Budget Update
 - a. Session Overview and 2022 Preview
 - b. 2021-2023 Budget
2. SB 1049 Implementation Update
3. Valuation Methods and Assumptions Including Assumed Rate of Return
4. Notice of Assumed Rate OAR



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July 23, 2021

TO: Members of the PERS Board
FROM: Gregory R. Gabriel, Budget Officer
SUBJECT: 2021-23 PERS Agency Budget Update (SB 5536)

The following budget was approved and signed by the Governor on June 1, 2021.

- Operating Budget (Limited) \$150,582,110
- Benefits / Health Payments (Nonlimited) \$12,886,613,593
- Employer Incentive Fund (EIF) \$1 (\$16.8M estimated in HB 5006)
- School Districts Unfunded Liability Fund (SDULF) \$1
- Positions 423
- FTE 421.92

The operating budget is \$9.4 million or 6.6% above the 2019-21 Legislatively Approved Budget of \$141.2 million. This increase can be attributed to increased program staffing, associated payroll costs and State Government Service Charges.

The Nonlimited budget for benefit payments increased by \$382.0 million or 3.1% more than the 2019-21 Legislatively Approved Budget. This increase is due to growing retirements and benefit payments in all programs: Tier 1, Tier 2, Oregon Public Service Retirement Program (OPSRP), Individual Account Program (IAP), and the PERS Health Insurance Program (PHIP).

The Agency received approval for the following policy packages related to operations for the 2021-23 biennium:

CFO Added Packages:

Package 087 – Adds \$40,039 in the Financial Services Division (FSD) for roll-up costs related to the upward reclassification of an Actuarial Coordinator to an Associate Actuary.

Package 099 — Removes \$295,563 in the Financial Services Division (FSD) to reflect the statewide consolidation of Microsoft 365 licensing. This expenditure is now included in State Government Service Charges.

Agency Requested Packages:

Package 101 — SB 1049 Implementation (\$22,814,797 / 34.88 FTE)

Package 102 — Modernization (\$800,000 / 0.0 FTE)

Package 103 — Information Security (\$940,731 / .88 FTE)

Package 104 — Senior Systems Administrator (\$17,033 / 0.0 FTE)

Package 106 — Specialty Qualifications (\$278,924 / 1.76 FTE)

Package 107 — Qualifying / Nonqualifying (\$436,606 / 2.64 FTE)

Package 109 — Strunk and Eugene Recovery (\$180,819 / 1.00 FTE)

Package 110 — Education Team (\$287,661 / 1.76 FTE)

Package 112 — Deferred Maintenance (\$425,000 / 0.00 FTE)

LFO Packages:

Package 801 — Establishes \$825,000 in the Information Services Division (ISD) for funding a five year contract for extended firewall support and wireless installation support services related to the production data center migration.

Below is the Agency overview of the Legislatively Adopted Budget for 2021-23 separated by operating division:

	CENTRAL ADMIN	FINANCIAL SERVICES	INFORMATION SERVICES	OPERATIONS	COMPLIANCE AUDIT AND RISK	CRSA (SB1049)	TOTAL
BUDGET	18,389,692	25,509,775	29,427,649	43,996,509	9,643,688	23,614,797	150,582,110
POSITIONS	51	35	78	203	21	35	423
FTE	51.00	35.00	77.88	202.16	21.00	34.88	421.92

Action and Discussion Items

1. Legislative Session Review and 2021-23 Budget Update
 - a. Session Overview and 2022 Preview
 - b. 2021-2023 Budget
2. SB 1049 Implementation Update
3. Valuation Methods and Assumptions Including Assumed Rate of Return
4. Notice of Assumed Rate OAR



Oregon

Kate Brown, Governor

Public Employees Retirement System

Headquarters:
11410 S.W. 68th Parkway, Tigard, OR
Mailing Address:
P.O. Box 23700
Tigard, OR 97281-3700
888-320-7377
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www.oregon.gov/pers

July 23, 2021

TO: Members of the PERS Board
FROM: Yvette Elledge-Rhodes, Deputy Director
SUBJECT: SB 1049 Implementation Update

Senate Bill (SB) 1049 was signed into law by the Governor on June 11, 2019. PERS staff continue to focus on completing work in an efficient and effective manner.

PROGRAM/PROJECT IMPLEMENTATION

The SB 1049 Implementation Program is being managed as one comprehensive program, with the following five individual projects. All projects go through the Enterprise Information Services (EIS) stage gate process.

Project	Effective Date	Project Health and Status (as of 6/30/21)
SB 1049 Program		Program health: Yellow <ul style="list-style-type: none"> Program health will remain in Yellow status as Member Redirect is scheduled past the end of the 2021-2023 biennium. Program manager change. Addition of new SB 1049 Technical Debt Project.
Employer Programs Project	Effective 7/1/2019	Project health: Green <ul style="list-style-type: none"> All work packages have been deployed. Project closure activities have begun. Project end date is 7/16/21.
Salary Limit Project	Effective 1/1/2020	Project ended 5/28/21
Work After Retirement Project	Effective 1/1/2020	Project health: Green <ul style="list-style-type: none"> Analysis and elaboration continues for Work Package (WP) 4.
Member Redirect Project	Effective 7/1/2020	Project health: Green <ul style="list-style-type: none"> Successful deployment of WP4.2 and WP12 on 6/24/21. Construction continues for WP5 (voluntary contributions maintenance); on track to complete by 7/9/21. Change Request 006 was presented to and approved by Steering Team on 6/22/21.

Member Choice Project	Effective 1/1/2021	Project health: Green <ul style="list-style-type: none"> • Successful deployment of WP3 on 6/24/21. • Project closure activities have begun. • Project end date is 8/4/21.
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Highlighted activities completed or in progress since early June 2021:

- Program and project activities
 - iQMS activities
 - Final May 2021 Periodic Quality Status Report received 5/24/21.
 - Next Quarterly QA Status and Improvement Report due 7/17/21.
- EIS Stage Gate process requirements
 - PERS received updated endorsement memos on 3/17/21.
- Budget reporting
 - PERS 2021-2023 budget signed by Governor on 6/1/21.
 - JCIMT meeting was held on 4/7/21.
 - Continuing monthly meetings with the Chief Financial Office, Legislative Fiscal Office, and the Governor’s Office.
- Communications
 - Employer Programs
 - Published the fourth UALRP educational guide, “Guide to Understanding Pooling” on 6/1/21.
 - Final UALRP guide about Financial Modeling is under review and set to be published on 7/12/21.
 - ERPT user guide is under review.
 - June [Employer News](#) included:
 - Salary Limit reminder to check employee’s partial-year salary limit and make adjustments if their final wages surpass the pro-rated limit.
 - Article about new rates going into effect on July 1, how they will be affected by the new member redirect offset, and where to find their new rate on their invoice.
 - Article informing employers that they can make extra deposits into their side accounts with no extra cost.
 - Employer Advisory Group meeting scheduled for 7/16/21.

PROGRAM/PROJECT BUDGET







The high-level budget information is contained within Page 2 of the attachment to agenda item A.3.c. The detailed budget can be viewed in the attached Monthly Status Report.

PERS staff will continue to update the board as program implementation continues throughout the year.

C.2. Attachment 1 – *Monthly Project Status Report and Roadmap*






Senate Bill (SB) 1049 Implementation Road Map

2019-2021 Biennium


	2019						2020						2021										
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
 Employer Programs	<ul style="list-style-type: none"> 7/1/19 – Effective Date 9/3/19 – Employer Incentive Fund (EIF) Application #1 Opens 						<ul style="list-style-type: none"> 11/27/19 – EIF Application #1 Closes 12/2/19 – EIF Application #2 Opens 						<ul style="list-style-type: none"> 8/6/20 – Employer Rate Projection Tool (ERPT) Assessment Complete 12/1/20 – EIF Application #2 Closes 3/30/21 – Work Package (WP) 1 Migrate and Adapt ERPT →● 6/30/21 – WP2 ERPT Stakeholder Acceptance and Deployment →● 										
 Salary Limit							<ul style="list-style-type: none"> 12/24/19 – Work Package (WP) 1 – Short Term 1/1/20 – Effective Date 1/24/20 – WP2 Post 2020 Salary Limit – Long Term 						<ul style="list-style-type: none"> 11/19/20 – WP3 User Screens to Record Annual Salary Limit – Long Term 5/13/21 – WP4 Proration Reports and Workflow – Long Term →● 5/28/21 – Project Close →● 										
 Work After Retirement							<ul style="list-style-type: none"> 12/19/19 – Work Package (WP) 1 Retiree Wages Suspended – Short Term 1/1/20 – Effective Date 						<ul style="list-style-type: none"> 11/19/20 – WP2 New Wage Codes with General Ledger (GL) Integration – Long Term 5/13/21 – WP3 Retro Rate Change – Long Term →● 										
 Member Redirect							<ul style="list-style-type: none"> 6/18/20 – Work Package (WP) 1 Employee Pension Stability Account Set Up/Batch/General Ledger – Short Term 7/1/20 – Effective Date 						<ul style="list-style-type: none"> 9/22/20 – Voluntary Contributions Initial Functionality – Long Term 10/30/20 – WP2.2 IAP Forecaster Tool – non-jClarety – Long Term 11/19/20 – Voluntary Contributions Final Functionality Release – Long Term 1/21/21 – WP5.2 Online Member Services User Interface – Long Term →● 1/26/21 – WP2 TIED SSIS – Non-jClarety – Long Term →● 6/24/21 – WP4.2 EPSA Display, and WP12 Full EPSA Set up Screen – Long Term →● 3/23/21 – WP3 EPSA Earnings – Long Term 										
 Member Choice	<ul style="list-style-type: none"> 10/23/19 – Project Kick Off 5/15/20 – Member Annual Statements (MAS) Flyer Communication →● 						<ul style="list-style-type: none"> 8/19/20 – Member Choice Notification →● 						<ul style="list-style-type: none"> 8/20/20 – Work Package (WP) 1 Online Member Services (OMS) Changes Deployed 9/1-30/20 – Election Period 3/23/21 – WP2 OMS & jClarety Enhancements – Long Term →● 5/1/21 – Member Choice reflected in MAS →● 6/24/21 – WP3 Online Member Services (OMS) Election and Bugs →● 1/1/21 – Effective Date 										
PROGRAM INITIATIVE													<ul style="list-style-type: none"> 1/26/21 – WP2.1 IAP Payment Recon (short-term) →● 3/18/21 – WP1.2 IAP Validator Tool (long-term) →● 										
 Cross Project Effort							<ul style="list-style-type: none"> 9/17/20 – WP1.1 IAP Validator Tool (short-term) →● 						<ul style="list-style-type: none"> 4/27/21 – WP2.2 IAP Payment Recon (long-term) →● 5/13/21 – WP7.2 Employer Information Actuarial Extract →● 6/18/21 – WP5.1 PYE Invoicing Tool →● 6/24/21 – WP7.1 Non-Retired Census Actuarial Extract →● 6/28/21 – WP4.1 IAP Adjustment Calculator →● 										

June 18

2021-2023 Biennium

PROJECTS	2021						2022												2023					
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
 Employer Programs	<ul style="list-style-type: none"> ● 7/16/21 – Project Close 																							
 Work After Retirement							<ul style="list-style-type: none"> ● 12/16/21 – WP4 Side Account Credit Allocation ● 2/23/22 – Project Close (Tentative) 																	
 Member Redirect							<ul style="list-style-type: none"> ● 10/14/21 – WP5 Voluntary Contribution Maintenance – Long Term ● 2/24/22 – WP4.3 EPSA Transaction Display – Long Term ● 1/25/22 – WP6 EPSA Retirement – Long Term ● 4/21/22 – WP7.1 EPSA Divorce – Long Term ● 7/28/22 – WP8.2 Pre-Retirement Death – Long Term 												<ul style="list-style-type: none"> ● 3/23/23 – WP9 Withdrawals – Long Term → ● 					
 Member Choice	<ul style="list-style-type: none"> ● 8/4/21 – Project Close 																							
PROGRAM INITIATIVE																								
 Cross Project Effort							<ul style="list-style-type: none"> ● TBD – WP6 IAP Balance Comparison Tool ● TBD – WP7.3 Tier One/Tier Two/OPSRP Payouts Actuarial Extract ● 2/22/22 – WP3 IAP Divorce Tool ● TBD – WP4.2 IAP Adjustment Calculator ● TBD – WP5.2 PYE Invoicing Tool 																	

2023-2025 Biennium

PROJECTS	2023						2024												2025					
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
 Member Redirect	<ul style="list-style-type: none"> ● 9/28/23 – WP10.1 Post-Retirement Death – Long Term 						<ul style="list-style-type: none"> ● 1/25/24 – WP11 Maintaining Benefits – Long Term ● 2/29/24 – Migration Finalization ● 2/21/24 – Project Close 																	

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Program information:

Program start: July 1, 2019 | Program end: April 30, 2024

Subprojects:

Project 1: Employer Programs

- Project start: July 1, 2019 | Project end: July 16, 2021
- Project status: **Green**

Project 2: Work After Retirement (WAR)

- Project start: July 1, 2019 | Project end: February 28, 2021
 - Re-baseline completed 5/20/2021
- Project status: **Green**

Project 3: Salary Limit

- Project start: July 1, 2019 | Project end: May 28, 2021
- Project status: **Complete**

Program statement:

SB 1049 is comprehensive legislation intended to address the increasing cost of funding Oregon’s Public Employees Retirement System (PERS), reduce system Unfunded Actuarial Liability (UAL) obligations, and provide relief to escalating contribution rate increases for public employers. Implementation will occur across five subprojects.

Project 4: Member Redirect

- Project start: July 1, 2019 | Project end: February 21, 2024
- Project status: **Green**

Project 5: Member Choice

- Project start: October 23, 2019 | Project end: August 4, 2021
- Project status: **Green**

For details regarding individual project status, please refer to the respective project section(s) below.

Overall program status: Yellow

The program status continues to be yellow. All projects are green, and the 2021-2023 budget request has been approved. However, Member Redirect has project activities that will continue into the 2023-2025 biennium, and this budget has neither been requested nor approved.

Salary Limit completed all project close out activities and was able to successfully close on time on 5/28/2021.

Employer Programs successfully deployed their final work package on 6/3/2021 (soft launch, please see details in the Employer Programs status report section below). Member Choice is on track to deploy its final work package to production on 6/24/2021. Both projects will initiate closure activities in July and are on-track for on-time closure.

Member Redirect and WAR will continue development, testing, and deployment activities into the next biennium as-planned. All activities for Member Redirect and WAR are currently on-schedule.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget health: Yellow

The 2021-2023 budget was signed by the Governor on 6/1/2021. Additional work is planned for Member Redirect beyond the 2021-2023 biennium, but that budget has not been requested/approved yet.

29560- SB 1049 Implementation Program by Project							
Other Funds Lmt	19-21 Budget	Actual to Date	Projections	19-21 Total	Variance	21-23 Policy Package	Program Cost
Salary Limit Project	\$ 1,422,027	\$ 942,767	\$ 105,299	\$ 1,048,066	\$ 373,961	\$ -	\$ 1,048,066
Work After Retirement Project	\$ 2,182,839	\$ 1,757,092	\$ 310,677	\$ 2,067,769	\$ 115,070	\$ 337,000	\$ 2,404,769
Member Redirect Project	\$ 21,040,133	\$ 17,236,832	\$ 2,142,613	\$ 19,379,445	\$ 1,660,688	\$ 22,477,797	\$ 41,857,242
Employer Programs Project	\$ 2,051,084	\$ 1,559,288	\$ 447,898	\$ 2,007,186	\$ 43,898	\$ -	\$ 2,007,186
Member Choice Project	\$ 2,337,814	\$ 1,879,488	\$ 403,169	\$ 2,282,657	\$ 55,157	\$ -	\$ 2,282,657
Total	\$ 29,033,897	\$ 23,375,467	\$ 3,409,656	\$ 26,785,123	\$ 2,248,774	\$ 22,814,797	\$ 49,599,920

29560- SB 1049 Implementation Program by POP							
Other Funds Lmt	19-21 Budget	Actual to Date	Projections	19-21 Total	Variance	21-23 Policy Package	Program Cost
802- Project Management & Admin	\$ 2,500,000	\$ 1,794,500	\$ 406,004	\$ 2,200,504	\$ 299,496	\$ 2,044,800	\$ 4,245,304
803- Quality Assurance and Testing	\$ 2,500,000	\$ 2,025,550	\$ 349,566	\$ 2,375,116	\$ 124,884	\$ 812,500	\$ 3,187,616
804- Info Technology Applications	\$ 15,992,000	\$ 13,871,659	\$ 1,755,804	\$ 15,627,463	\$ 364,537	\$ 13,337,000	\$ 28,964,463
805- Operational Implementation	\$ 8,041,897	\$ 5,683,758	\$ 898,282	\$ 6,582,040	\$ 1,459,857	\$ 6,620,497	\$ 13,202,537
806- Contingency Reserve	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 29,033,897	\$ 23,375,467	\$ 3,409,656	\$ 26,785,123	\$ 2,248,774	\$ 22,814,797	\$ 49,599,920

AFN
\$ 20,566,023

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Schedule health: **Yellow**

Two Cross Project Effort work packages have been delayed, but the delays are not expected to have downstream impact, nor significant impact to business operations. Otherwise, all projects have a schedule health of green and are on track to deliver required functionality according to their baselined schedules.

Scope health: **Green**

The program and project scope is understood and has been incorporated into program-level plans and schedules.

Quality Assurance activities:

- iQMS Deliverable 3.3.5 Periodic Quality Status Report started on 3/31/2021, completed 6/9/2021.
- iQMS Deliverable 4.1.6 Quarterly QA Status and Improvement Report starts 6/9/2021, due 8/4/2021.
- iQMS Deliverable 3.3.6 Periodic Quality Status Report starts on 7/27/2021, due 9/9/2021.

Emerging concerns/needs/impacts:

- Operations Tool Support (OTS) tool updates for SB 1049 are proving to be more complicated and time-consuming than originally estimated, contributing to delays to current work packages. The team is assessing whether we have adequate time estimated for future SB 1049 tool updates.
- New work efforts are being planned that could impact SB 1049 staff and technical resources. The SB 1049 team is proactively evaluating potential resource conflicts and developing mitigation plans to minimize the impact to SB 1049.
New work efforts include, but are not limited to:
 - W-4P Project (federally mandated, non-SB 1049)
 - SB 1049 Program Technical Debt change requests
- As two more projects prepare to close:
 - The team is planning and conducting project closure activities, including final closure reporting, release/reassignment of project resources, and contract review and closeout

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Program Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent weekly status report: [SB 1049 Program Weekly Status Report](#)

#	Risk Description	Mitigation and/or Contingency Plan	Notes
58	Technical Debt Impact to Timelines: Technical Debt Limits Ability to Provide SB 1049 Functionality within the mandated timeframes.	➤ Assess the individual technical debt items to determine if it is required or optional. Escalate to Steering as required.	Currently reviewing technical debt for Employer Statements, which was amplified by the addition of SB 1049 functionality.
81	Technology Risk: Complexity and fragility of jClarety system.	➤ Some or all of the SB 1049 projects may require attention to fixing technical debt or finding appropriate work arounds. See the individual project risks logs for specific mitigation activities.	
39	Critical Resources Allocated to non-SB 1049 Work: Critical SB 1049 resources are allocated to non-SB 1049 work, impacting availability for SB 1049 work and causing schedule delays.	<ul style="list-style-type: none"> ➤ Assess project and resource plans for any new work effort to determine impact to SB 1049 ➤ Proactively manage any identified resource constraints and work with managers to mitigate SB 1049 impact. 	New efforts currently under consideration include: <ul style="list-style-type: none"> • W-4P Project (federally mandated, non-SB 1049) • SB 1049 Program Technical Debt change requests

Program Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent weekly status report: [SB 1049 Program Weekly Status Report](#)

No	Issue	Resolution / Notes	Estimated Resolution Date
	No current issues		

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Program information: Cross Project Effort

Start: May 28, 2020 | End: TBD
Project Manager: Susan K. Mundell

Cross Project Effort objective:

The Cross Project Effort is focused on technical tools, and extracts that are used across multiple SB 1049 projects. Originally, these efforts were included as Work Packages within the individually impacted projects. The scope of this effort has not changed, but the work has been restructured to ensure it receives an appropriate level of coordination and ensure the success of the necessary inter-project integrations.

Overall status: Green

Narrative: The updated schedule that includes Work Package (WP) 4.2 and WP5.2 is in Quality Check Point review. These new work packages created by Change Request 29560 CPE-04 will allow the team to fully test all updates to the tools. WP4.1 and WP5.1, currently in User Acceptance Testing (UAT) will test the Voluntary Contributions and Employee Pension Stability Account while WP4.2 and WP5.2 will test the Target Date Fund (TDF) updates. This schedule has a planned baseline date of 6/30/2021.

Both WP4.1: IAP Adjustment Calculator and WP5.1: Prior Year Earnings Invoicing Tool have had to restart UAT due to show stopping issues and defects. However, they are both now progressing well in their second UAT. WP7.1: Census Actuarial Extract has successfully completed UAT and is now waiting for the 6/24/2021 deployment to production.

Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
WP7.2 : Employer Actuarial Extract Deployed	100%	5/13/2021	5/13/2021	
WP5.1: Prior Year Earnings Invoicing Tool Deployed	0%	5/13/2021	6/18/2021	No downstream impact expected
WP4.1: IAP Adjustment Calculator Deployed	0%	6/02/2021	6/28/2021	No downstream impact expected
WP7.1: Non-Retired Actuarial Extract Deployed	0%	6/24/2021	6/24/2021	
WP3: IAP Divorce Tool Deployed	0%	2/22/2022	2/22/2022	
WP5.2: Prior Year Earnings Invoice Tool Deployed	0%		6/30/2022	Schedule to be baselined by 6/30/2021
WP4.2: IAP Adjustment Calculator Deployed	0%		6/30/2022	Schedule to be baselined by 6/30/2021

*Finish Date Color: Green = on Schedule, Yellow = in Jeopardy, Red = Late

Note: Future milestones exist and will be rotated in as the timing becomes more relevant.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Senate Bill (SB) 1049 Implementation Road Map

2019-2021 Biennium

	2019						2020						2021										
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Employer Programs	<ul style="list-style-type: none"> 7/1/19 - Effective Date 9/3/19 - Employer Incentive Fund (EIF) Application #1 Opens 11/27/19 - EIF Application #1 Closes 12/2/19 - EIF Application #2 Opens 												<ul style="list-style-type: none"> 8/6/20 - Employer Rate Projection Tool (ERPT) Assessment Complete 12/1/20 - EIF Application #2 Closes 3/30/21 - Work Package (WP) 1 Migrate and Adapt ERPT → 6/30/21 - WP2 ERPT Stakeholder Acceptance and Deployment → 										
Salary Limit							<ul style="list-style-type: none"> 12/24/19 - Work Package (WP) 1 - Short Term 1/1/20 - Effective Date 1/24/20 - WP2 Post 2020 Salary Limit - Long Term 						<ul style="list-style-type: none"> 11/19/20 - WP3 User Screens to Record Annual Salary Limit - Long Term 5/13/21 - WP4 Proration Reports and Workflow - Long Term → 5/28/21 - Project Close → 										
Work After Retirement							<ul style="list-style-type: none"> 12/19/19 - Work Package (WP) 1 Retiree Wages Suspended - Short Term 1/1/20 - Effective Date 						<ul style="list-style-type: none"> 11/19/20 - WP2 New Wage Codes with General Ledger (GL) Integration - Long Term 5/13/21 - WP3 Retro Rate Change - Long Term → 										
Member Redirect	<ul style="list-style-type: none"> 6/18/20 - Work Package (WP) 1 Employee Pension Stability Account Set Up/Batch/General Ledger - Short Term 						<ul style="list-style-type: none"> 7/1/20 - Effective Date 1/21/21 - WP5.2 Online Member Services User Interface - Long Term → 1/26/21 - WP2 TIED SSIS - Non-jClarety - Long Term → 						<ul style="list-style-type: none"> 9/22/20 - Voluntary Contributions Initial Functionality - Long Term 10/30/20 - WP2.2 IAP Forecaster Tool - non-jClarety - Long Term 11/19/20 - Voluntary Contributions Final Functionality Release - Long Term 3/23/21 - WP3 EPSA Earnings - Long Term 6/24/21 - WP4.2 EPSA Display, and WP12 Full EPSA Set up Screen - Long Term → 										
Member Choice	<ul style="list-style-type: none"> 10/23/19 - Project Kick Off 5/15/20 - Member Annual Statements (MAS) Flyer Communication → 						<ul style="list-style-type: none"> 8/19/20 - Member Choice Notification → 						<ul style="list-style-type: none"> 8/20/20 - Work Package (WP) 1 Online Member Services (OMS) Changes Deployed 9/1-30/20 - Election Period 1/1/21 - Effective Date 3/23/21 - WP2 OMS & jClarety Enhancements - Long Term → 5/1/21 - Member Choice reflected in MAS → 6/24/21 - WP3 Online Member Services (OMS) Election and Bugs → 										
PROGRAM INITIATIVE													<ul style="list-style-type: none"> 1/26/21 - WP2.1 IAP Payment Recon (short-term) → 										
Cross Project Effort							<ul style="list-style-type: none"> 9/17/20 - WP1.1 IAP Validator Tool (short-term) → 						<ul style="list-style-type: none"> 3/18/21 - WP1.2 IAP Validator Tool (long-term) → 4/27/21 - WP2.2 IAP Payment Recon (long-term) → 5/13/21 - WP7.2 Employer Information Actuarial Extract → 6/18/21 - WP5.1 PYE Invoicing Tool → 6/24/21 - WP7.1 Non-Retired Census Actuarial Extract → 6/28/21 - WP4.1 IAP Adjustment Calculator → 										

June 18

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

2021-2023 Biennium

PROJECTS	2021						2022						2023												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Employer Programs		• 7/16/21 – Project Close																							
Work After Retirement																									
Member Redirect																									
Member Choice		• 8/4/21 – Project Close																							
PROGRAM INITIATIVE																									
Cross Project Effort																									

2023-2025 Biennium

PROJECTS	2023						2024						2025												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Member Redirect																									

Project information: Employer Programs

Project start: July 1, 2019 | **Project end:** July 16, 2021

Project Manager: Joli Whitney

Project objective:

The Employer Programs section of SB 1049 expands the requirements for the Employer Incentive Fund (EIF); and appropriates \$100 million from the General Fund to the Employer Incentive Fund; directs net proceeds from Oregon Lottery Sports betting to the Employer Incentive Fund; allows participating public employers who make larger than \$10 million deposits to side accounts to determine when they wish to have these funds included in their employer rate assessment; and requires all public employers to participate in the Unfunded Actuarial Liability Resolution Program (UALRP).

Overall project status: **Green**

Project Narrative: The second work package (WP2) was successfully deployed to production on 6/3/2021. This work package moved the new Employer Rate Projection Tool (ERPT) from the internal datacenter to an Azure cloud-hosted environment. The ERPT is the first cloud-hosted PERS application. This project has provided a valuable learning opportunity for technical staff to gain experience deploying and managing applications in a shared environment. A lessons learned meeting was held on 6/17/2021 to evaluate and capture the experience for future reference.

PERS deployed the ERPT in a “soft launch”. Although the ERPT was deployed to production nearly a month early, the notification for employers that the new tool is available will still follow the scheduled deployment plan of 6/30/2021. This allows the team time to validate ERPT in production, to perform planned change management activities, and to prepare communications for employers by 6/30/2021.

Employer Rate Projection Tool Work Packages

WP1 Migrate and Adapt ERPT (Completed)

- Acceptance Quality Gate: 3/23/2021 (this WP was not released to production)
- Convert tool to use PERS standard platform
 - Move from Oracle to SQL
- Enhance tool to meet PERS branding standards and add disclaimer language

WP2 ERPT Stakeholder Acceptance and Deployment to Cloud

- Production Deployment Date: 6/3/2021 (Completed)
 - User Acceptance Testing with Employer Stakeholders
 - Cloud hosting
- Final Communication to Stakeholders 6/30/2021

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget health: Green

Employer Programs is currently within the budget allocated by the Legislature.

29560 SB1049 - Employer Programs Project					
Expenses	Budget	Actual to Date	Projections	Total	Variance
*Personal Services - PERS	\$ 960,000	\$ 925,416	\$ 34,584	\$ 960,000	\$ -
General Overhead Allocation	\$ 328,438	\$ 233,005	\$ 83,712	\$ 316,717	\$ 11,721
Personal Services - SB1049	\$ 230,811	\$ 199,697	\$ 6,583	\$ 206,280	\$ 24,531
Office Expenses	\$ 5,000	\$ 77	\$ 4,000	\$ 4,077	\$ 923
IT Professional Services	\$ 1,306,083	\$ 1,120,625	\$ 178,851	\$ 1,299,476	\$ 6,607
Professional Services	\$ 170,752	\$ -	\$ 170,752	\$ 170,752	\$ -
IT Expendable Prop	\$ 10,000	\$ 5,883	\$ 4,000	\$ 9,883	\$ 117
SB1049 Expenses	\$ 2,051,084	\$ 1,559,288	\$ 447,898	\$ 2,007,186	\$ 43,898
Project Total	\$ 3,011,084	\$ 2,484,704	\$ 482,482	\$ 2,967,186	\$ 43,898
Average Monthly Spend (Burn Rate)		\$ 67,795.11	\$ 447,898.00		
*Not included in SB1049 Expenses					

Schedule health: Green

The schedule is well understood.

Scope health: Green

The scope is well understood. All functionality required by Employer Programs has been deployed to production.

Quality Assurance activities:

- Quality Check Point of the Final Work Package Development documentation of WP2 is scheduled to start on 6/30/2021.

Emerging concerns/needs/impacts:

- No emerging concerns. Preparing for project closeout activities.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

High Level Project Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent weekly status report: [Employer Programs Weekly Status Report](#)

#	Risk Description	Mitigation and/or Contingency Plan	Notes
	No critical risks		

Project Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent weekly status report: [Employer Programs Weekly Status Report](#)

No	Issue	Resolution / Notes	Estimated Resolution Date
	No current issues		

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
Rebaseline Project Schedule	100%	9/29/2020	9/29/2020	
Receive EIS Endorsement Memo	100%	9/30/2020	9/30/2020	
EIF Application Closes (Window #2)	100%	12/1/2020	12/1/2020	
WP1 Development Complete	100%	1/7/2021	1/29/2021	
WP1 Business Functional Testing Complete	100%	2/26/2021	2/26/2021	
WP1 User Testing Complete	100%	3/19/2021	3/19/2021	
WP1 Final Acceptance Quality Gate	100%	3/30/2021	3/23/2021	
WP2 Development Complete	100%	4/8/2021	4/8/2021	
WP2 Business Functional Testing Complete	100%	4/28/2021	2/26/2021	
WP2 User Acceptance Testing Complete	100%	6/7/2021	5/18/2021	
WP2 Deployment Complete (ERPT Complete)	100%	6/30/2021	6/3/2021	ERPT was deployed nearly one month early in a soft launch.
Launch UALRP and ERPT to Employers	0%	6/30/2021	6/30/2021	
Project End	0%	7/16/2021	7/16/2021	

*Finish Date Color: Green = on Schedule, Yellow = in Jeopardy, Red = Late

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project information: Work After Retirement (WAR)

Project start: July 1, 2019 | Project end: 2/28/2021

Project Manager: Susan K. Mundell

Project objective:

Effective January 1, 2020, the Work After Retirement (WAR) sections of SB 1049 allow most service retirees to work unlimited hours for PERS participating employers in calendar years 2020-2024 while retaining their retirement benefit. It also requires employers to pay employer contributions on retirees' salary during that period.

Overall project status: **Green**

Project Narrative: WAR Work Package 4 (WP4): Side Account Credit Allocation plus Defect Remedy is moving along with elaboration, Business Requirements Document development, technical as-is testing along with defect research and initial defect correction development.

The scope for WAR WP4 includes the Side Account Credit Allocation which will add functionality that is critical to employer invoicing by ensuring that the WAR receivables credit Side Accounts in the same manner as active member receivables currently work. The Defect Remedy part of the scope for WAR WP4 includes seven WAR-related production defects. The Business Requirements Document is planned to be delivered on 7/12/2021, which will kick off the full technical review and solution development for the Side Account portion of this work package.

Work Packages:

Work Package 1: Suspend DTL2-07 Retiree Wage Codes - Short-term

- Production Deployment Date: 12/19/2019 (Complete)

Work Package 2: New Wage Codes with General Ledger Integration - Long-term

- Production Deployment Date: 11/19/2020 (Complete)

Work Package 3: Retro Rate Change - Long-term

- Production Deployment Date: 5/13/2021 (Complete)

Work Package 4: Side Account Credit Allocation

- Production Deployment Date: 12/16/2021
- Business Requirements Document due 7/12/2021
- Development completion 10/5/2021
- Business Functional Testing completion: 10/26/2021
- User Acceptance Testing completion: 12/10/2021

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget health: Green

WAR is currently within the budget allocated by the Legislature.

29560 SB1049 - Work After Retirement (WAR) Project					
Expenses	Budget	Actual to Date	Projections	Total	Variance
*Personal Services - PERS	\$ 1,454,297	\$ 1,395,338	\$ 58,959	\$ 1,454,297	\$ -
General Overhead Allocation	\$ 637,166	\$ 466,011	\$ 171,155	\$ 637,166	\$ -
Personal Services - SB1049	\$ 462,087	\$ 396,726	\$ 16,494	\$ 413,220	\$ 48,867
Office Expenses	\$ 2,194	\$ 97	\$ 500	\$ 597	\$ 1,597
Professional Services	\$ 140,000	\$ 131,000	\$ -	\$ 131,000	\$ 9,000
IT Professional Services	\$ 931,392	\$ 757,723	\$ 119,528	\$ 877,251	\$ 54,141
IT Expendable Property	\$ 10,000	\$ 5,536	\$ 3,000	\$ 8,536	\$ 1,464
SB 1049 Total Expenses	\$ 2,182,839	\$ 1,757,093	\$ 310,677	\$ 2,067,770	\$ 115,069
Project Total	\$ 3,637,136	\$ 3,152,431	\$ 369,636	\$ 3,522,067	\$ 115,069
Average Monthly Spend (Burn Rate)		\$ 76,395.35	\$ 310,677.00		
*Not included in SB1049 expenses					

Schedule Health: Green

All major milestones are currently on track.

Scope health: Green

The detailed definition of the scope was expanded by CR29560 WAR-05 which created Work Package 4: Side Account Credit Allocation. Elaboration for this scope has begun with the Business Requirements Document due by 7/12/2021.

Quality Assurance activities:

- A Quality Check Point review was completed on 6/3/2021 for contractual deliverable D3.4.1 Final Work Package Documentation (WP3).
- A Quality Check Point review was completed on 6/9/2021 for contractual deliverable D1.0.21 Contractor Support Log.

Emerging concerns/needs/impacts:

- Two new high priority projects are beginning within the agency that may compete with WAR for resources and scheduled deployment date.
- WAR WP4 must be deployed prior to the 12/20/2021 credit wash job to prevent overbilling of employers.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

High Level Project Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent weekly status report: [WAR Weekly Status Report](#)

	Risk Description	Mitigation and/or Contingency Plan	Notes
2	Complexity of Effort: The forecasted amount of work, timing, available documentation and complexity is inaccurate or assumptions made that are off base.	<ul style="list-style-type: none"> ➢ Set additional elaboration meetings or extend the elaboration timeline ➢ Use iterative development to reverse engineer the code to meet Business need. ➢ Ensure effective inter-team project communication ➢ Schedule additional time to analyze complex code 	Side Account code within jClarety is some of the most complex code. The technical team will have to navigate this code successfully to deploy the deliverable for WAR WP4.
78	Code Merge Impact: Code merges from releases to development, Business Functional Testing (BFT) & User Acceptance Testing (UAT) environments cause delays and rework.	<ul style="list-style-type: none"> ➢ Ensure communication happens quickly and is inclusive. ➢ Avoid merges during UAT testing whenever possible. ➢ Contingency plan for needed UAT merges. 	The 10/14/2021 Member Redirect release will necessitate a code merge during WP4 BFT. This will be planned and monitored closely to prevent merge issues.
81	Technology Risk: Complexity and Fragility of jClarety system: New code could negatively affect or be negatively affected by legacy jClarety system.	<ul style="list-style-type: none"> ➢ Iteratively develop more complex code structure. ➢ Add necessary technical debt fix to project scope. ➢ Regression Test to ensure technical issue does not negatively affect new code. 	Side Account code within jClarety is some of the most complex code. The technical team will have to navigate this code successfully to deploy the deliverable for WAR WP4.
93	WAR WP4 Deployment Delay: WP4 needs to be deployed before the 12/20/2021 Side Account Wash Job to prevent significant overcharging of employers.	<ul style="list-style-type: none"> ➢ Carefully monitor any delays to the schedule. ➢ Carefully monitor competing project and their impact to the WP4 schedule. ➢ Communicate urgency of deployment timeline to stakeholders. 	A Federally mandated change to W-4P and a pending Program CR may cause over allocation with WAR resources, which could in turn cause delays to WP4. The team will monitor this risk closely.

Project Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent weekly status report: [WAR Weekly Status Report](#)

	Risk Description	Mitigation and/or Contingency Plan	Notes
	No Current Issues		

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
WP1 - Phase Closure Complete	100%	2/13/2020	2/13/2020	
WP2 - Deployment Complete	100%	10/22/2020	11/19/2020	
WP4 - High Level Estimate Complete	100%	2/25/2021	2/25/2021	
WAR - Baselined Effort Based Project Schedule	100%	3/5/2021	3/5/2021	
WP3 - Business Functional Testing (BFT) Complete	100%	3/19/2021	3/19/2021	
WP3 - Ready for User Acceptance Testing (UAT) Quality Gate	100%	3/29/2021	3/26/2021	
WP3 - User Acceptance Testing Complete	100%	5/7/2021	5/07/2021	
WP3 - Quality Assurance Testing Complete	100%	5/7/2021	5/07/2021	
WP3 - Move to Production Quality Gate Complete	100%	5/12/2021	5/11/2021	
WP3 - Deployment Complete	100%	5/13/2021	5/13/2021	
WAR - Rebaselined Effort Based Project Schedule (WP4)	100%	5/20/2021	5/20/2021	
WP3 - Phase Closure Complete	100%	5/27/2021	5/27/2021	
WP4 - Business Requirements Document Complete	0%	7/12/2021	7/12/2021	
WP4 - Development Complete	0%	10/5/2021	10/5/2021	
WP4 - Business Functional Testing (BFT) Complete	0%	10/26/2021	10/26/2021	
WP4 - User Acceptance Testing (UAT) Complete	0%	12/10/2021	12/10/2021	
WP4 - Deployment Complete	0%	12/16/2021	12/16/2021	
WP4 - Phase Closure Complete	0%	1/04/2021	1/4/2021	
WAR Project Complete	0%	2/28/2021	2/28/2022	

*Finish Date Color: Green = on Schedule, Yellow = in Jeopardy, Red = Late

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project information: Salary Limit

Project start: 7/01/ 2019 | Project end: 5/28/2021

Project Manager: Bruce Rosenblatt

Project objective:

The Salary Limit Project is necessary because SB 1049 redefined "salary," which changes the calculation method for Final Average Salary, and contributions for members with subject salary greater than \$195,000. This limit is on salary for plan purposes, and is not a salary cap. The Salary Limit was adjusted for the Consumer Price Index, on 1/04/2021. The redefinition impacts the data and business processes used by diverse teams at PERS, including Benefit Calculations, Member Estimates, Data Verifications, Employer Data Reporting, and Account Data Reviews and Reporting.

Overall project status: Complete

Project Narrative: The Salary Limit Project was successfully closed on-time on 5/28/2021 by approval of the Executive Sponsor and Salary Limit Business Owner.

Prior to closure, the team conducted a Lessons Learned for the entire Salary Limit project on 5/24/2021, conducted and approved the Salary Limit Project Closure Quality Gate on 5/27/2021, and received approval for the Project Closure Document on 5/28/2021. Project team members have been released to work on other SB 1049 duties or returned to their normal PERS assignments.

Work Packages:

Work Package 1: Short-term Minimum Viable Product (MVP)

- Production Deployment Date: 12/24/2019 (Complete)

Work Package 2: Annual Implementation of New Salary Limit

- Production Deployment Date: 1/23/2020 (Complete)

Work Package 3: Adding self-service screens to jClarety system to record annual changes and effective dates - Long-term

- Production Deployment Date: 11/19/2020 (Complete)

Work Package 4 - Enhances proration work processes when partial year calculations may apply - Long-term

- Production Deployment Date: 5/13/2021 (Complete)

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget Health: Green

Salary Limit Project budget completed below the budget allocated by the Legislature.

29560 SB1049 - Salary Limit					
Expenses	Budget	Actual to Date	Projections	Total	Variance
*Personal Services - PERS	\$ 1,455,000	\$ 1,436,263	\$ 18,737	\$ 1,455,000	\$ -
General Overhead Allocation	\$ 318,583	\$ 233,005	\$ 85,578	\$ 318,583	\$ -
Personal Services - SB1049	\$ 232,356	\$ 199,642	\$ 19,721	\$ 219,363	\$ 12,993
Services and Supplies	\$ 147,088	\$ 131,240	\$ -	\$ 131,240	\$ 15,848
IT Professional Services	\$ 714,000	\$ 373,344	\$ -	\$ 373,344	\$ 340,656
IT Expendable Prop	\$ 10,000	\$ 5,536		\$ 5,536	\$ 4,464
SB1049 Total Expenses	\$ 1,422,027	\$ 942,767	\$ 105,299	\$ 1,048,066	\$ 373,961
Project Total	\$ 2,877,027	\$ 2,379,030	\$ 124,036	\$ 2,503,066	\$ 373,961
Average Monthly Spend (Burn Rate)		\$ 40,989.85	\$ 105,299.00		
*Not included in SB1049 Expenses					

Schedule health: Complete

All scheduled Salary Limit activities are complete and the project was successfully closed on time on 5/28/2021.

Scope health: Complete

The project scope has been fully delivered.

Quality Assurance activities:

- The Salary Limit Project Closure Quality Gate was conducted and approved on 5/27/2021.

Emerging concerns/needs/impacts:

- None.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

High Level Project Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent [Salary Limit Weekly Status Report](#)

#	Risk Description	Mitigation and/or Contingency Plan	Notes
	No current risks		

Project Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent [Salary Limit Weekly Status Report](#)

No	Issue	Resolution / Notes	Estimated Resolution Date
	No current issues		

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
WP2 - Post New Salary Limit - Release to Production	100%	1/23/2020	1/23/2020	
WP3 - Requirements Complete	100%	3/13/2020	3/13/2020	
Change Request Approval (SL_01)	100%	5/15/2020	5/15/2020	
Baseline the project schedule	100%	6/17/2020	6/17/2020	
WP4 - Requirements Complete	100%	7/14/2020	7/14/2020	
WP3 - Development Complete	100%	8/14/2020	8/14/2020	
WP3 - Business Function Testing (BFT) Complete	100%	9/04/2020	9/02/2020	
WP3 - User Acceptance Testing (UAT) Complete	100%	9/04/2020	11/13/2020	
WP3 - Deployment Complete	100%	10/22/2020	11/19/2020	
WP4 - Signoff User Stories & Acceptance Criteria Complete	100%	8/18/2020	11/17/2020	
WP4 - Development Complete	100%	1/19/2021	2/19/2021	
WP4 - Business Function Testing (BFT) Complete	100%	3/19/2021	3/15/2021	
WP4 - User Acceptance Testing (UAT) Complete	100%	5/07/2021	5/07/2021	
WP4 - Deployment Complete	100%	5/13/2021	5/13/2021	
Project Complete	100%	5/28/2021	5/28/2021	

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project information: Member Redirect

Project start: July 1, 2019 | **Project end:** February 21, 2021

Project Manager: Chris Yu

Overall project status: **Green**

Project Narrative: The overall project health is green and activities are progressing on schedule. Work package 4.2 (EPSA Earnings) and work package 12 (EPSA Screen Setup) completed User Acceptance Testing on 6/7/2021. Deployment for both work packages are on schedule to be completed on 6/24/2021. In addition, the Business Requirements Document for work package 6 (EPSA Retirement) was completed on 6/7/2021.

Change Request 006 (Work Package Removal) is being drafted by the Project Manager. The purpose of CR-006 will be to remove work package WP7.1 (EPSA Divorce), WP8.2 (EPSA Pre-Retirement Death), WP10.1 (EPSA Post-Retired Death) and to re-arrange the deployment priority because the Policy Analysis and Compliance Section determined that these 3 work packages are not necessary to support the overall scope of Member Redirect. This Change Request is scheduled to be presented to the SB 1049 Steering Team on 6/22/2021.

Work Packages:

Work Package 4.2 EPSA Earnings - Long-Term

- Production Deployment Date: 6/24/2021
- Business Functional Testing was completed on 5/14/2021
- User Acceptance Testing was completed on 6/7/2021

Work Package 12 Full EPSA Screen Setup - Long-Term

- Production Deployment Date: 6/24/2021
- Business Functional Testing was completed on 5/14/2021
- User Acceptance Testing was completed on 6/7/2021

Project objective:

Effective July 1, 2020 this section of the bill redirects a portion of member contributions to a new Employee Pension Stability Account (EPSA) when the funded status of the plan is below 90% and the member's monthly salary is more than \$2,500.

Work Package 5.1 EPSA Voluntary Contribution Maintenance- Long-Term

- Production Deployment Date: 10/14/2021
- Construction will be completed on 7/9/2021

Work Package 4.3 EPSA Correct Member Account - Long-Term

- Production Deployment Date: 2/24/2022
- Construction will begin on 6/28/2021

Additional long-term work packages exist. See the Milestones Schedule for a complete list of work packages

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget health: Green The project is below budget for the current biennium. The Governor signed and approved the budget for the 2021-2023 biennium. However, based on the current schedule, there will need to be additional funding for 2023-2025, which will be tracked at the program level.

29560 SB1049 - Member Redirect Project					
Expenses	Budget	Actual to Date	Projections	Total	Variance
*Personal Services - PERS	\$ 1,626,016	\$ 1,595,824	\$ 30,192	\$ 1,626,016	\$ -
General Overhead Allocation	\$ 4,778,742	\$ 3,495,080	\$ 1,282,442	\$ 4,777,522	\$ 1,220
Personal Services - SB1049	\$ 4,111,180	\$ 2,898,879	\$ 149,203	\$ 3,048,082	\$ 1,063,098
Services and Supplies	\$ 826,890	\$ 463,673	\$ 316,458	\$ 780,131	\$ 46,759
IT Professional Services	\$ 10,923,321	\$ 10,096,829	\$ 278,510	\$ 10,375,339	\$ 547,982
IT Expendable Property	\$ 200,000	\$ 88,573	\$ 110,000	\$ 198,573	\$ 1,427
Data Processing Hardware	\$ 200,000	\$ 193,798	\$ 6,000	\$ 199,798	\$ 202
SB1049 Total Expenses	\$ 21,040,133	\$ 17,236,832	\$ 2,142,613	\$ 19,379,445	\$ 1,660,688
Project Total	\$ 22,666,149	\$ 18,832,656	\$ 2,172,805	\$ 21,005,461	\$ 1,660,688
Average Monthly Spend (Burn Rate)		\$ 749,427.50	\$ 2,142,613.00		
*Not included in SB1049 Expenses					

Schedule Health: Green

The current project tasks are on schedule for all current milestone dates.

Scope health: Green

The project scope is understood for all releases.

Quality Assurance activities:

- The move to Production Quality Gate Quality Gate for Release 9.9.0, which will include Work Package 4.2 and 12, will be on 6/23/2021

Emerging concerns/needs/impacts:

- As a response to Policy Analysis and Compliance Section feedback, the product owners have requested that we remove three long-term work packages because they are no longer required to support Member Redirect. The project team is also investigating the possibility of replacing these work packages with backlog user stories and additional Member Redirect defect resolution.

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

High Level Project Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent weekly status report: [Member Redirect Weekly Status Report](#)

#	Risk Description	Mitigation and/or Contingency Plan	Notes
75	New Schedule update and work package removal: Three work packages that will be removed from this project, which will require remaining work packages to be re-planned, possibly causing resource constraints with other projects.	<ul style="list-style-type: none"> ➤ The Project Manager and Product owners will meet to discuss upcoming deployments for other SB 1049 projects in order to avoid resource allocation conflicts ➤ Schedules will be evaluated across all active projects to ensure resource allocations are effectively managed 	Change request CR-006 is scheduled to be presented to the SB 1049 Steering Team on 6/22/2021
62	Communication draft review process: There is a risk in terms of reviewing Monthly Newsletter communication drafts in the appropriate time due to inconsistent processes.	<ul style="list-style-type: none"> ➤ The business owner will take the initiative to specifically assign Subject Matter Experts for review and the Project Manager will create a standard practice for both internal and external stakeholders. The delay could potentially impact Member Redirect communication to the employers and members 	The Project Manager will prepare for potential communication drafts as change request CR-006 proceeds through the approval process

Project Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent weekly status report: [Member Redirect Weekly Status Report](#)

No	Issue	Resolution / Notes	Estimated Resolution Date
	No current issues		

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
WP4.1 - EPSA Minimum Salary	100%	12/22/2020	12/22/2020	
WP 5.2 - Online Member Services User Interface	100%	1/21/2021	1/21/2021	
WP2.1 - Tool for IAP Earnings Data	100%	1/26/2021	1/26/2021	
WP3.1 - EPSA Earnings	100%	3/23/2021	3/23/2021	
WP3.2 - Member Annual Statement Extract	100%	3/23/2021	3/23/2021	
WP4.2 - EPSA Transaction Display	0%	6/24/2021	6/24/2021	
WP12 - Full EPSA Set up screen	0%	6/24/2021	6/24/2021	
WP5 - Voluntary Contribution maintenance	0%	10/14/2021	10/14/2021	
WP4.3 - EPSA Correct Member Account	0%	2/24/2022	2/24/2022	
WP6 - EPSA Retirement	0%	1/25/2022	1/25/2022	
WP7.1 - EPSA Divorce	0%	4/21/2022	4/21/2022	
WP8.2 - Pre-Retirement Death	0%	7/28/2022	7/28/2022	
WP9 - Withdrawals	0%	3/23/2022	3/23/2022	
WP10.1 - Post-Retirement Death	0%	9/28/2023	9/28/2023	
WP11 - Maintaining Benefits	0%	1/25/2024	1/25/2024	
Migration Finalization	0%	2/9/2024	2/9/2024	
Project Complete	0%	2/21/2024	2/21/2024	

*Finish Date Color: Green = on Schedule, Yellow = in Jeopardy, Red = Late

Project information: Member Choice

Project start: October 23, 2019 | **Project end:** August 4, 2021

Project Manager: Joli Whitney

Overall project status: **Green**

Project Narrative: The third and final work package (WP3- Online Member Services Election and Bugs) completed User Acceptance Testing on 6/15/2021. WP3 will be deployed to production on 6/24/2021 in Release 9.9.0 combined with Member Redirect and Cross Project Effort work packages. This deployment is on track as scheduled.

Work package 2.2 (WP2.2 Central Data Management Reports) is completed. The final report deployed a few days ahead of schedule on 6/15/2021.

After completion of the final work package release the team will begin project closeout activities. A lessons learned meeting has been scheduled for 6/29/2021, and a Project Closure Quality Gate will be scheduled.

Short-term Solutions (to meet 1/1/2021 Member Choice effective date)

WP1: Member Election - Short-term

WP1.1 Online Election

- Production Deployment Date: 8/20/2020 (Complete)

WP1.2 Voya's updates to website and nightly sweep program

- Production Deployment Date: 1/19/2021 (Complete)

WP1.3 PERS paper form election process including workflow

- Production Deployment Date: 8/12/2020 (Complete)

WP1.4 Development of new reports (to Voya and internal)

- Production Deployment Date 9/29/2020 (Complete)

Project objective:

The Member Choice sections of SB 1049 give members a say in how their Individual Account Program (IAP) accounts will be invested. Members' regular IAP accounts are currently allocated to Target-Date Funds (TDF) based on their year of birth. Beginning with calendar year 2021, members will be able to elect a TDF other than the default TDF.

WP2- Refining TDF Processes - Long-term

WP2.1 -Online Member Services and jClarety Enhancements

- Production Deployment Date: 3/23/2021 (Complete)

WP2.2 Central Data Management Reports

- Production Deployment Date: 6/15/2021 (Complete)
- Reports for Financial Reporting Services, Data Analysis and Reconstruction team and Intake and Review team which had a dependency on status data delivered in WP2.1

WP3- Online Member Services Election and Bugs

- Production Deployment Date: 6/24/2021

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Budget health: Green

Member Choice Project is currently within the budget allocated by the Legislature.

29560 SB1049 - Member Choice Project Budget					
Expenses	Budget	Actual to Date	Projections	Total	Variance
*Personal Services - PERS	\$ 1,040,000	\$ 1,009,514	\$ 30,486	\$ 1,040,000	\$ -
General Overhead Allocation	\$ 318,583	\$ 233,005	\$ 83,342	\$ 316,347	\$ 2,236
Personal Services - SB1049	\$ 311,193	\$ 199,083	\$ 54,200	\$ 253,283	\$ 57,910
Office Expenses	\$ 1,500	\$ 1,163	\$ 200	\$ 1,363	\$ 137
Professional Services	251,198	\$ 280,000	-	\$ 280,000	\$ (28,802)
IT Professional Services	\$ 1,449,000	\$ 1,160,701	\$ 264,927	\$ 1,425,628	\$ 23,372
IT Expendable Prop	\$ 6,340	\$ 5,535	\$ 500	\$ 6,035	\$ 305
SB1049 Total Expenses	\$ 2,337,814	\$ 1,879,487	\$ 403,169	\$ 2,282,656	\$ 55,158
Project Total	\$ 3,377,814	\$ 2,889,001	\$ 433,655	\$ 3,322,656	\$ 55,158
Average Monthly Spend (Burn Rate)		\$ 81,716.85	\$ 403,169.00		
*Not included in SB1049 Expenses					

Schedule Health: Green

The project schedule is well understood.

Scope health: Green

The project scope is well understood.

Quality Assurance activities:

- Quality Check Point of the Final Work Package Transition Support for WP3 is scheduled to start on 6/30/2021.
- A Project Closure Quality Gate will be scheduled in July (date TBD).

Emerging concerns/needs/impacts:

- None

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

High Level Project Risks and Mitigation

Listed below are the most critical risks for this project.

For the complete Risk Log, please see the Risk Log tab in the most recent weekly status report: [Member Choice Weekly Status Report](#)

#	Risk Description	Mitigation and/or Contingency Plan	Notes
	No high level risks		

Project Issues and Action Plans

Listed below are the most critical issues for this project.

For the complete Issue Log, please see the Issue Log tab in the most recent weekly status report: [Member Choice Weekly Status Report](#)

No	Issue	Resolution / Notes	Estimated Resolution Date
	No current issues	.	

SB 1049 Implementation Program

Status Report for June 18, 2021

Executive Sponsor: Kevin Olineck
Program Manager: Christa Harrison

Project Schedule Deliverables and Milestones

Milestones Schedule				
Milestone	Percent Complete	Baseline Finish Date	Actual / Forecast Finish Date*	Status/ Notes
Member Choice TDFs Effective (Legislative deadline)	100%	1/1/2021	1/1/2021	
WP2.1 Development Complete	100%	1/8/2021	1/8/2021	
WP2.1 Business Functional Testing Complete	100%	2/19/2021	2/19/2021	
WP2.1 User Acceptance Testing Complete	100%	3/19/2021	3/17/2021	
WP2.1 Deployment Complete	100%	3/23/2021	3/23/2021	
WP3 Development Complete	100%	4/19/2021	4/19/2021	
WP3 Business Functional Testing Complete	100%	5/14/2021	5/14/2021	
W2.2 Development Complete	100%	5/19/2021	4/14/2021	
WP2.2 Business Functional Testing Complete	100%	6/3/2021	4/16/2021	
WP3 User Acceptance Testing Complete	100%	6/15/2021	6/15/2021	
WP2.2 User Acceptance Testing Complete	100%	6/17/2021	6/11/2021	
WP2.2 Deployment Complete	100%	6/18/2021	6/15/2021	
WP3 Deployment Complete	0%	6/24/2021	6/24/2021	
Project Close	0%	8/4/2021	8/4/2021	

*Finish Date Color: Green = on Schedule, Yellow = in Jeopardy, Red = Late

Action and Discussion Items

1. Legislative Session Review and 2021-23 Budget Update
 - a. Session Overview and 2022 Preview
 - b. 2021-2023 Budget
2. SB 1049 Implementation Update
3. Valuation Methods and Assumptions Including Assumed Rate of Return
4. Notice of Assumed Rate OAR



Valuation Methods & Assumptions

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Presented by:

Matt Larrabee, FSA, EA
Scott Preppernau, FSA, EA

July 23, 2021

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Today's Agenda

- Background
- Recent legislative changes
- Recap of economic assumptions and actuarial methods
 - Includes long-term investment return assumption
 - Reviewed in detail at last Board meeting
- Overview of demographic assumptions
- Rate collar
- Estimated effect of assumptions

Executive Summary

- Since last meeting, we analyzed PERS member census and are recommending updates to certain demographic assumptions
 - Combined, those recommendations are estimated to have a:
 - Increase of \$0.3 billion in the UAL (rounded to the nearest \$100 million)
 - 0.4% of payroll increase in the system-average advisory 2023-2025 uncollared rate
- We recommend adopting the revised rate collar methodology described in this presentation
 - Reflects a simpler and somewhat narrower collar than the existing approach
 - Adds a restriction to not allow any decrease in a pool's UAL Rate until funded status criteria are met
- Based on current data from the capital market outlooks for future investment return prepared by OIC's consultants and others, are well below the current investment return assumption of 7.2%
 - In our opinion it is **necessary** to lower the long-term future investment return assumption by **at least 0.20%**; we **recommend** reducing the assumption **further** to more closely reflect current outlooks
 - A decrease to 7.0%/6.8% is estimated to:
 - Increase the UAL as of December 31, 2020 by \$2.0/\$3.9 billion
 - Increase the system-average advisory 2023-2025 uncollared base rate by 1.5%/3.0% of payroll
 - This change is in addition to the 0.4% of payroll increase for recommended demographic assumptions noted above

Background

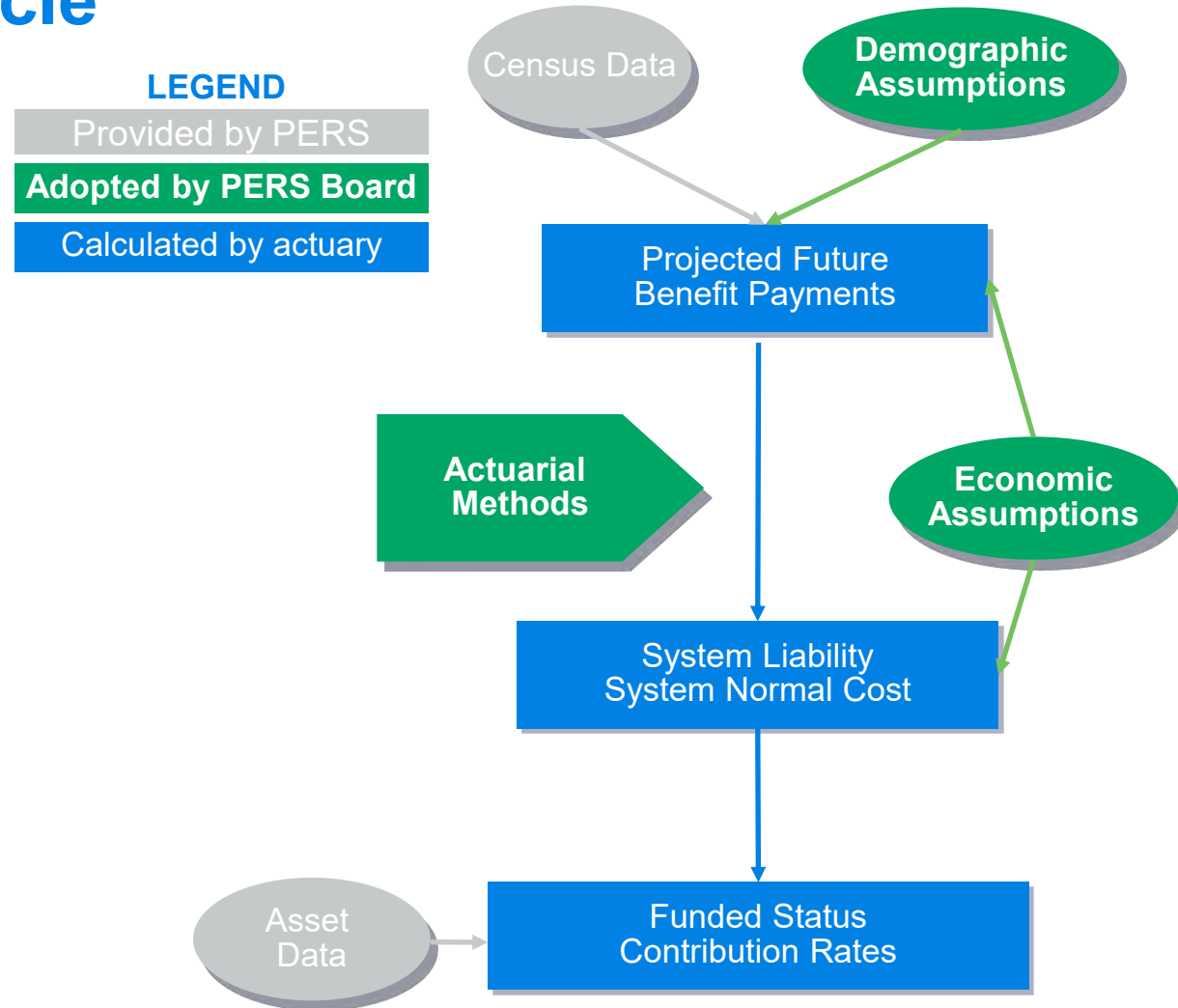
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Four-Meeting Process – Assumptions & Methods

- March 29: Assumed rate, including preliminary Milliman outlook model
- June 2: Joint meeting with Oregon Investment Council (OIC)
 - Assumed rate – outlooks from OIC’s consultants, Milliman
- June 4: Economic assumptions, system funding methods
 - Inflation and system payroll growth
 - Assumed rate
 - Actuarial methods, including amortization and rate collaring policy
- **July 23: Demographic assumptions, Board direction to actuary**
 - **Member-specific assumptions based on study of recent PERS experience**
 - **Assumptions and methods adopted for use in:**
 - **12/31/2020 actuarial valuation with advisory 2023-2025 contribution rates**
 - **12/31/2021 actuarial valuation with proposed final 2023-2025 contribution rates**

Two-Year Rate-Setting Cycle

- **July 2021: Assumptions & methods adopted by Board in consultation with the actuary**
- October 2021: System-wide 12/31/20 actuarial valuation results
- December 2021: Advisory 2023-2025 employer-specific contribution rates
- July 2022: System-wide 12/31/21 actuarial valuation results
- September 2022: Disclosure & adoption of employer-specific **2023-2025 contribution rates**



Valuation Process and Timeline

- Actuarial valuations are conducted annually
 - Alternate between “rate-setting” and “advisory” actuarial valuations
 - The next valuation as of December 31, 2020 will be an advisory actuarial valuation
- Board adopts contribution rates developed in rate-setting valuations, and those rates go into effect 18 months after the valuation date

Valuation Date	Employer Contribution Rates
12/31/2017 →	July 2019 – June 2021
12/31/2019 →	July 2021 – June 2023
12/31/2021 →	July 2023 – June 2025

Guiding Objectives - Methods & Assumptions

- Transparent
- Predictable and stable rates
- Protect funded status
- Equitable across generations
- Actuarially sound
- GASB compliant

Some of the objectives can conflict, particularly in periods with significant volatility in investment return or projected benefit levels. Overall system funding policies should seek an appropriate balance between conflicting objectives.

The Fundamental Cost Equation

- Long-term program costs are the contributions, which are governed by the “fundamental cost equation”:

$$\text{BENEFITS} = \text{CONTRIBUTIONS} + \text{EARNINGS}$$

Governance Structure

- Benefits:

- Plan design set by Oregon Legislature
- Subject to judicial review

- Earnings:

- Asset allocation set by OIC
- Actual returns determined by market

- Contributions:

- Funding, including methods & assumptions, set by PERS Board
- Since contributions are the balancing item in the fundamental cost equation, PERS Board policies primarily affect the **timing** of contributions
- Different actuarial methods and assumptions produce different projected future contribution patterns



Recent Legislative Changes

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Notable Changes from 2021 Legislative Session

- Senate Bill 111
 - Omnibus bill made several administrative and technical edits
 - Also **increased spousal death benefit** for members who die while retirement eligible and either actively employed or recently terminated
 - We intend to reflect this change in the December 31, 2020 actuarial valuation and will be able to estimate the effect on system-wide liability
- House Bill 2906
 - **Increases the pay threshold before member redirect applies**, effective in 2022
 - In 2022, \$3,333 per month threshold rather than \$2,500 plus two years' inflation adjustment
 - \$3,333 will be inflation-indexed after 2022
 - This will reduce member contributions to EPSA accounts and the funding of the Tier 1/Tier 2 and OPSRP programs compared to before the change

Effects of House Bill 2906

- For members above the threshold in 2022, redirected contributions will continue at 2.50% of payroll (Tier 1/Tier 2) or 0.75% of payroll (OPSRP)
- The 2021-2023 employer contribution rates adopted by the Board reflected projected tier-wide average member redirect offsets of:
 - 2.45% of Tier 1/Tier 2 payroll
 - 0.70% of OPSRP payroll
- The 0.05% of payroll difference between the offset for an affected member and the projected tier-wide level of redirect reflects the estimated effect of the pay threshold in place for 2021
 - With 2022's higher threshold under HB 2906, the estimated difference increases to 0.10% of payroll, as shown later in the presentation with our recommendation for the assumption used to set 2023-2025 rates
- When adopting the 2021-2023 employer contribution rates in October 2020, the Board reserved the right to revise the projected tier-wide rate offset for redirected member contributions if judicial or legislative action eliminated or changed this provision
 - The Board could revise adopted 2021-2023 employer rates effective January 1, 2022, but the change's magnitude, uncertainty of the estimate, and administrative challenges should be considered

Economic Assumptions (Other Than Investment Return) and Actuarial Methods

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Economic Assumptions and Actuarial Methods

- At the June 4, 2021 meeting, the Board reviewed
 - Non-investment economic assumptions
 - Actuarial methods (including rate collar)
 - Investment return assumption
- Our recommendations regarding economic assumptions and actuarial methods are generally unchanged since the June meeting
 - One added refinement to consider on surplus amortization policy for retiree healthcare program contribution rates
- Our rate collar recommendation, which is in a subsequent section of this presentation, builds upon discussion from June and includes specific adjustments for Tier 1/Tier 2 independent employers

Assumptions to Be Reviewed

Details of these recommendations are included in our June 2021 presentation

	12/31/2019 Valuation Assumptions	12/31/2020 Valuation Proposed* Assumptions
Inflation	2.5%	2.4% or lower
Real Wage Growth	<u>1.0%</u>	<u>1.0%</u>
System Payroll Growth	3.5%	3.4% or lower
Administrative Expenses	\$40.5 million	\$59 million

No explicit assumption is made for investment-related expenses, which are accounted for implicitly in the analysis of the long-term investment return assumption

Key Actuarial Methods

	12/31/2019 Valuation Methods	12/31/2020 Valuation Proposed* Methods
Cost Allocation Method	Entry Age Normal	No change
UAL (Shortfall) Amortization Method	<p>Level percent of pay, layered fixed periods:</p> <p><i>Tier 1/Tier 2:</i></p> <ul style="list-style-type: none"> • Re-amortized over 22 years as of 12/31/2019 per SB 1049 • 20 years as ongoing Board policy <p><i>OPSRP: 16 years</i></p> <p><i>RHIA/RHIPA: 10 Years</i></p>	<p>No change to Tier 1/Tier 2 and OPSRP</p> <p>Adopt policy for RHIA/RHIPA surplus amortization as described on next slide</p>
Rate Collar	<p>Limits change in base contribution rate to larger of 20% of current rate or 3.00% of payroll;</p> <p>Collar widens incrementally when funded status below 70%</p>	Recommend modifying structure as discussed in June meeting and following section

RHIA & RHIPA Surplus Amortization

- The combination of a shorter amortization period and recent experience gains has dramatically improved the funded status of the RHIA and RHIPA programs in recent years
 - At 12/31/2019 RHIA was at 159% funded status (up from 90% four years prior)
 - At 12/31/2019 RHIPA was at 87% funded status (up from 16% four years prior)
- For the last two rate-setting valuations the RHIA UAL rate was set to 0%, but was not allowed to be negative (a negative rate is a contribution rate offset or credit)
 - This meant the full RHIA normal cost of 0.05% was charged on Tier 1/Tier 2 payroll
 - We recommended this approach because RHIA results are sensitive to retiree participation rates, and it was unknown whether the funded status actuarial surplus would persist
- Given the continued experience of RHIA and the potential that RHIPA may be over 100% funded status soon, **we recommend adopting a policy for amortization when in surplus:**
 - When funded status is over 100% at a rate-setting valuation, **amortize the actuarial surplus over Tier 1/Tier 2 payroll using a rolling 20-year amortization basis**
 - Allow the resulting negative UAL Rate to **offset the normal cost** for the program, but not below 0.0%
 - If either program subsequently fell below 100%, the UAL would then be amortized over combined payroll following the existing 10-year closed, layered amortization policy

Rate Collar

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Rate Collar

- PERS applies a “rate collar” methodology as part of rate-setting process, as discussed in detail at recent Board meetings
 - Current rate collar parameters designed in 2005-2006, when system-wide rates were lower
- In June, we presented details and stress test results of a proposed alternate collar structure
 - Based on Board and stakeholder feedback over the last several months of discussions
 - Proposed structure:
 - Focuses the rate collar on the UAL Rate component (rather than sum of Normal Cost Rate and UAL Rate)
 - Collar width is 3% of pay for the Tier 1/Tier 2 UAL Rate for the two large Tier 1/Tier 2 experience-sharing pools and 1% of pay for OPSRP, which pools its experience state-wide
 - Specifics of rate collar width for independent employers’ Tier 1/Tier 2 UAL Rates were reserved for later discussion
 - We illustrated the effect of rate decrease restrictions, wherein the UAL Rate would not be allowed to decrease at all until the relevant experience-sharing pool was at least 90% funded excluding side accounts
- We recommend adopting the proposed structure, with UAL Rate decrease restrictions and the further detail regarding Tier 1/ Tier 2 independent employers discussed on the next slides
- To avoid a potential 3% of pay contribution rate cliff tied to a 1% change in funded status, we recommend adding a phase-in feature to UAL Rate decrease restrictions modeled in June

UAL Rate Decrease Restrictions – Adding a Phase-in Feature

- Tying UAL Rate decreases to a flat 90% funded status trigger could present challenges
 - Could have a biennium where one large Tier 1/Tier 2 rate pool is 90% funded and a 3% Tier 1/Tier 2 UAL Rate decrease is allowed for that pool, while the other large Tier 1/Tier 2 rate pool is 89% funded and the Tier 1/Tier 2 UAL Rate is unchanged for that pool
- To avoid such an abrupt contribution rate change differences based on a small difference in funded status, we recommend the UAL Rate decrease restrictions include a phase-in feature, from 87% to 90% funded status, of the allowable UAL Rate decrease

Rate Pool Funded Status	Allowable UAL Rate Decrease	
	Tier 1/Tier 2 Schools/SLGRP	OPSRP
87% or less	0.00%	0.00%
88%	1.00%	0.33%
89%	2.00%	0.67%
90% or more	3.00%	1.00%

Rate Collar – Tier 1/Tier 2 UAL Rates for Independent Employers

- In the most recent rate-setting valuation, nearly 130 employers with “independent employer” status received individually calculated Tier 1/Tier 2 rates
 - These independent employers do not benefit from the stabilizing effects of experience pooling effect like SLGRP or School District employers do
 - Independent employers have a wide variety of employer sizes and types;
 - For small independent employers, liability and payroll results can vary significantly from one biennium to the next
- The width of the rate collar proposed for the large Tier 1/Tier 2 rate pools reflects their current funded position, level of contribution rates, and the expected demographic stability of those pools
 - Since independent employers have more varied starting points and more volatile liability and payroll changes from biennium to biennium, we recommend a wider rate collar for independent employers

Rate Collar – Tier 1/Tier 2 UAL Rates for Independent Employers

- Current structure:
 - Width of collar is determined as greater of 3% of pay or 20% of the current rate in effect (Normal Cost Rate plus UAL Rate)
 - Collar is applied to the sum of the two rate components (Normal Cost Rate plus UAL Rate)
 - Independent employers that were not included in the prior rate-setting valuation due to zero payroll are exempt from the collar in the current rate-setting valuation
 - New employers have rates set to uncollared rates in their first rate-setting valuation; rate collar applies in future biennia
 - By long-standing Board policy, independent employers have a minimum rate of 6% for Tier 1/Tier 2 payroll
 - This was more significant when first adopted, but now applies to very few employers and has little effect
- Proposed structure:
 - Width of collar for the Tier 1/Tier 2 UAL Rate is **greater of 4% of pay or one-third of the difference between the collared and uncollared UAL Rates** at the last rate-setting valuation
 - **Collar is applied on the Tier 1/Tier 2 UAL Rate**; changes in the Normal Cost Rate will be fully reflected
 - UAL Rate would **not be allowed to decrease with full collar until 90% funded** (grade-in from 87% to 90%)
 - For employers that currently have funded status less than 100%, the maximum UAL Rate allowed would never be less than 0.00% (relevant if the prior biennium's collared UAL Rate was significantly negative)
 - Employers that were not included in the prior rate-setting valuation are exempt from the collar in the current rate-setting valuation (continuation of existing policy)

Long-Term Investment Return Assumption

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Long-Term Investment Return Assumption

- Uses of the investment return assumption
 - As a “discount rate” for establishing the:
 - Actuarial accrued liability, which is a net present value
 - Associated unfunded actuarial liability, also called the UAL or actuarial shortfall
 - Guaranteed crediting level for regular Tier 1 active member account balances
 - Annuitization rate for converting member account balances to lifetime money match monthly benefits



Reflecting expectations for both investment earnings and benefit levels for certain members, the assumption helps set a reasonable and appropriate budgeting glide path for projected employer contribution rates

Use of the Assumed Rate

$$B = C + E$$

BENEFITS = CONTRIBUTIONS + EARNINGS

present value of
earned benefits

Design set by:
Oregon Legislature

employer and member funds to
pay pension benefits

Set by:
PERS Board

future returns on
invested funds

Managed by:
Oregon Investment Council
Oregon State Treasury

- “B” is predictable with a relatively high degree of certainty
- “E” is the unpredictable **actual** future investment return on PERS assets
- “C” is the balancing item --- it must provide to “B” what “E” fails to cover

- The **assumed rate** is the Board’s estimate of “E” to prudently set “C”
- The Board’s decision on “E” does **not** affect actual future earnings

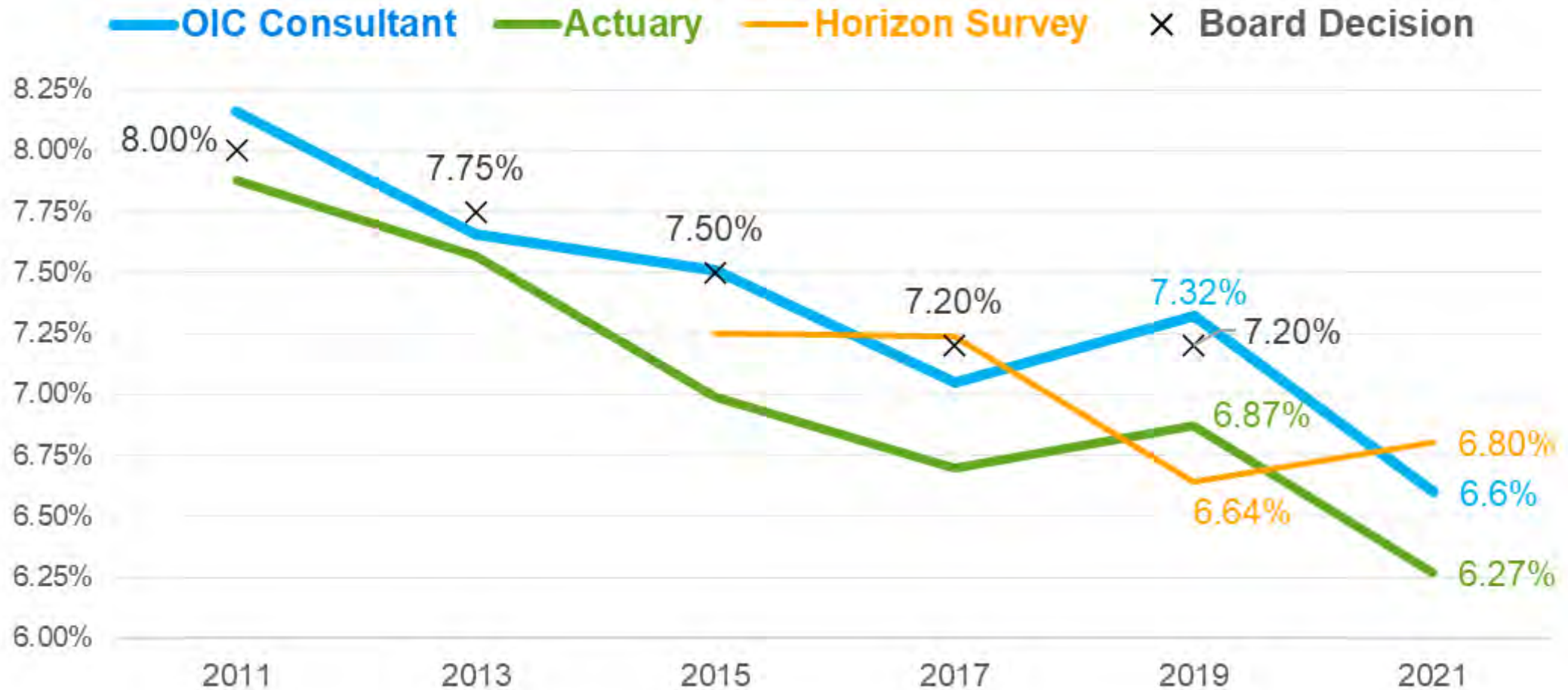
Investment Return 50th Percentile Outlooks

- We applied a standard mean/variance model to calculate 50th percentile return estimates based on capital market outlook assumptions from three sources
 - OIC assumption – reflects consensus among OST staff and consultants Meketa & Aon
 - Milliman
 - 2020 Horizon survey of 10-year capital market assumptions (survey of 39 advisors)
 - The Horizon survey was published in July 2020, based on outlooks from the first half of 2020
- Estimates do not reflect any possible “alpha” due to selected managers potentially outperforming market benchmarks over the long term, net of fees
- Today’s speakers are not credentialed investment advisors
 - We are presenting Milliman capital market outlook model results based on assumptions developed by Milliman’s credentialed investment professionals

Details on Milliman and Horizon outlook assumptions are in the Appendix

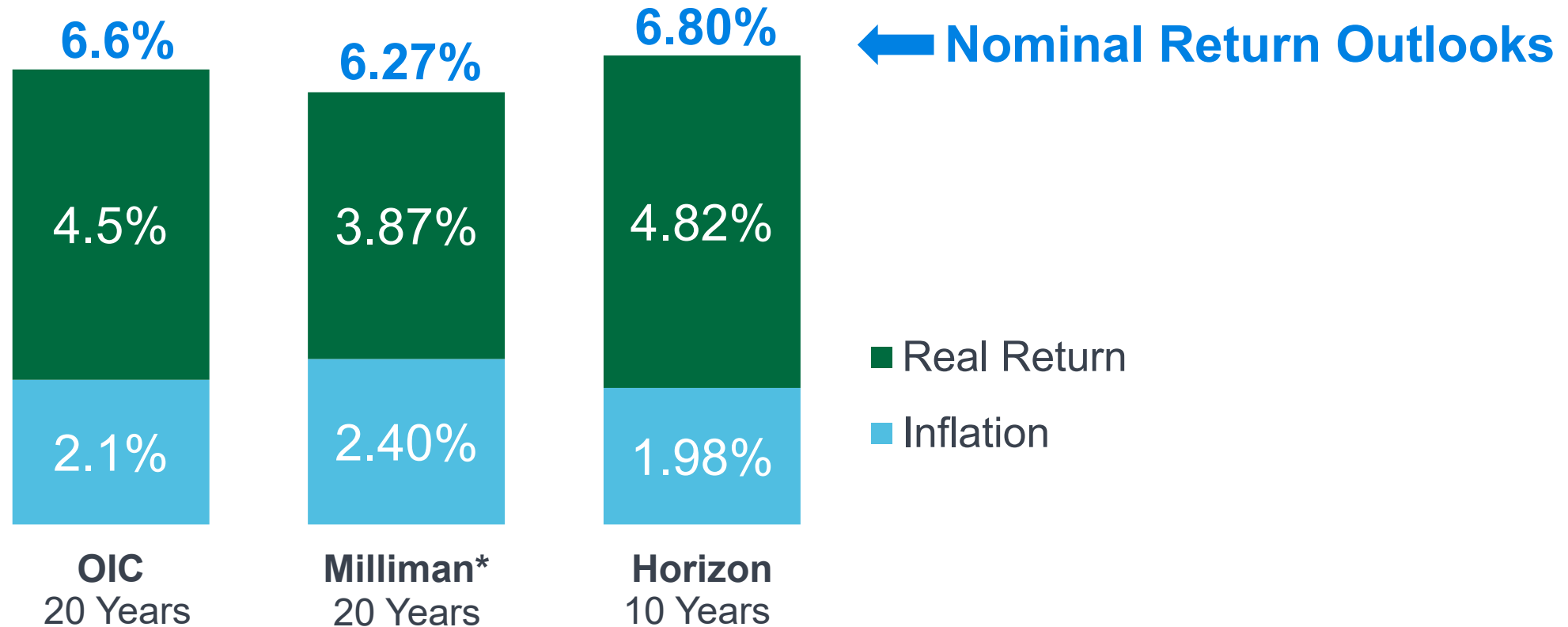
Investment Return 50th Percentile Outlooks

Geometric Returns from Outlook Models in Current and Prior Five Reviews



Investment Return 50th Percentile Outlooks & Component Building Blocks

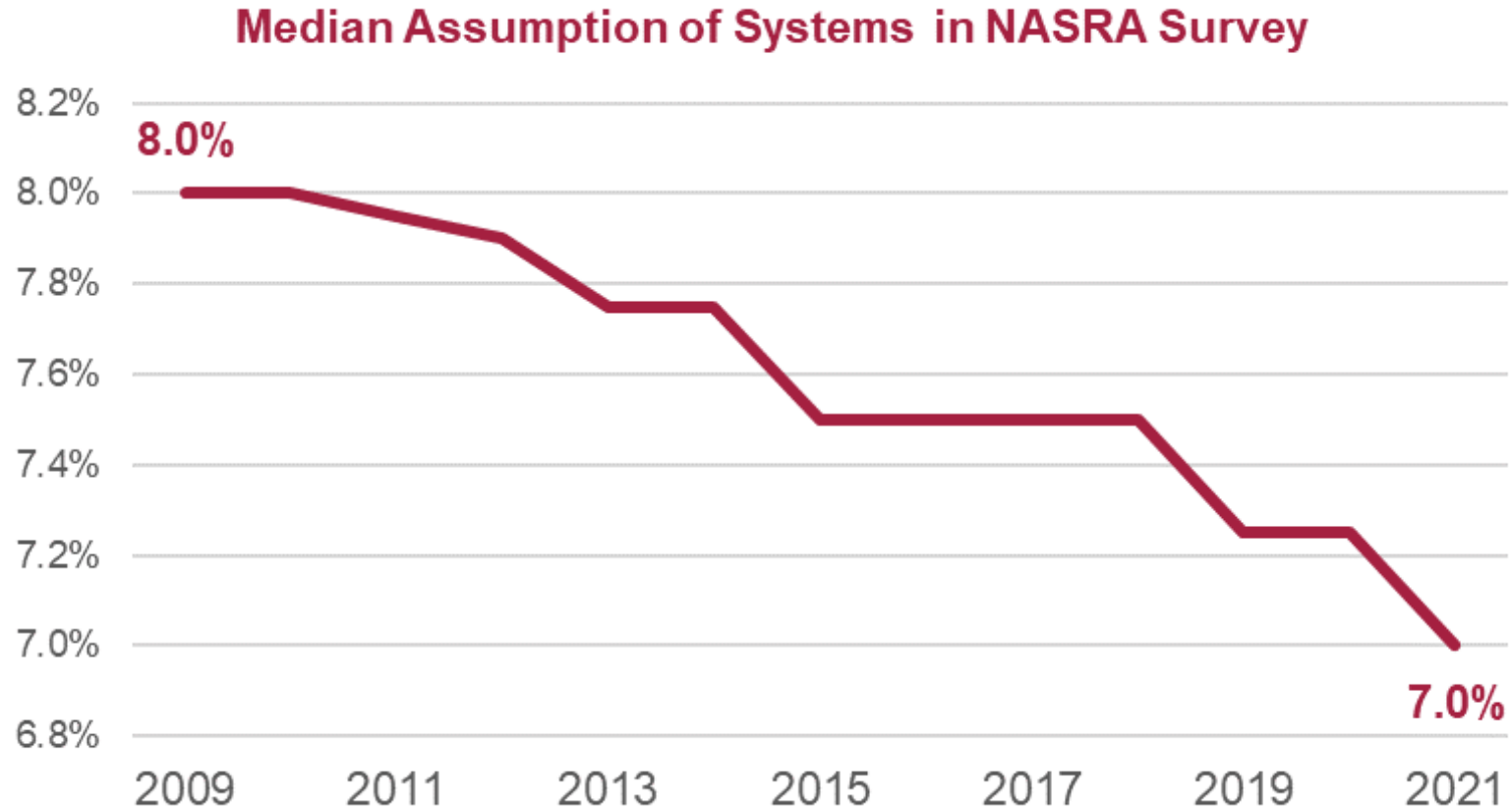
- Estimates are geometric annualized average returns based on the OIC's long-term asset allocation for each set of capital market assumptions



**Reflects real returns from Milliman capital market outlook assumptions adjusted for potential 2.40% inflation assumption*

Comparison to Peer Systems

- There is a downward trend in public plan return assumptions, with a current median assumption for large public systems of 7.00%

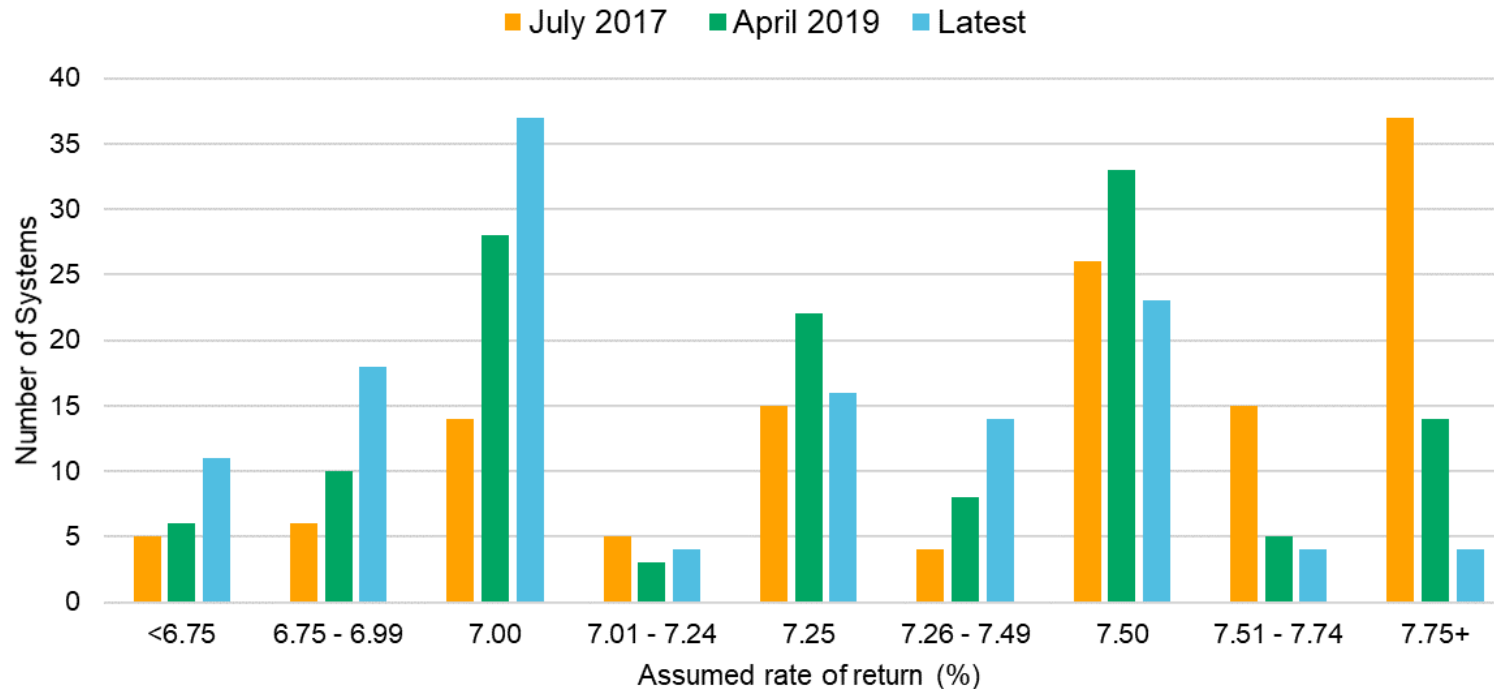


Source: NASRA (May 2021)

Comparison to Peer Systems

- The distribution of about 130 systems tracked by the NASRA Public Fund Survey is shown below
- Two years ago, the most common assumption was 7.50%; now the most common assumption is 7.00% and over half of all plans have an assumption of 7.00% or lower

Distribution of Investment Return Assumption
NASRA Public Survey



Source: NASRA (May 2021)

Effects of Lowering the Assumed Return

- A lower investment return assumption would produce higher calculated liabilities and contribution rates as of the actuarial valuation date
- Liabilities are net present values, as of the valuation date, of a benefit payment projection that stretches far into the future
 - Changing the assumption modifies the *projected* balance of the fundamental cost equation between future investment earnings and future contributions
 - The *actual* balance will depend on actual investment earnings, not on the assumed return adopted by the PERS Board
- The increase in the uncollared 2023-25 system average base employer contribution rate resulting from lowering the assumed return was estimated in our March presentation as:
 - Assumed rate of 7.00% increases system average uncollared contribution rates by 1.5%-1.6% of payroll
 - Assumed rate of 6.80% increases system average uncollared contribution rates by 3.1%-3.2% of payroll
- For PERS, such an assumption change would also lower benefits for future retirements calculated under the Money Match formula

Considerations in Setting the Return Assumption

- Based on current data from the capital market outlook models, the guiding objectives, and Actuarial Standards of Practice:
 - In our opinion it is **necessary to lower** the long-term future investment return assumption by **at least 0.20%**
 - We **recommend** reducing the assumption **further** to more closely reflect the current range of outlooks
- The OIC, working with Meketa (primary investment consultant) and Aon (secondary investment consultant), estimates a long-term average future nominal return of 6.6% under the proposed allocation over the next 20 years
 - The 6.6% OIC outlook has two building blocks: 4.5% real return and 2.1% inflation
- Social Security's intermediate assumptions outlook for long-term inflation is 2.4%
 - Example of combining outlook building blocks: a 4.5% real return outlook plus a 2.4% inflation outlook would result in a 6.9% outlook for nominal return

Overview of Demographic Assumptions

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Demographic Assumptions

- We statistically analyzed member census data provided by PERS
 - Four years of experience data analyzed for most demographic assumptions
 - Eight years of experience data analyzed for individual member salary increase assumptions
- Recommended assumptions were developed based on the statistical analysis
- Full details of the analysis are in our formal experience study report
- We reviewed the effect of 2020 experience on our analysis, given that the pandemic and related events could lead to outlier results in 2020 that may not provide an appropriate statistical basis for a forward-looking assumption
 - For mortality, we ultimately removed 2020 experience from our analysis due to higher death rates across much of the retiree population
 - For school district salary increase, we removed 2020 experience since it was noticeably lower than other years and may have been driven by pandemic-related furloughs
 - For other assumptions, there was not as clear a case to remove or adjust 2020 experience, so the 2020 experience data was included

Summary of Demographic Assumptions

- Mortality assumptions mostly unchanged and continue to use base mortality tables specific to current and former governmental employees in public plans
 - Also incorporate most recent data in assumption for projected future mortality improvement
- Adjust likelihood of retirement assumption at some ages where recent experience differed from current assumption
- Increase merit portion of individual member salary assumption for all three groups
- Adjust pre-retirement termination assumptions for one group
- Adjust two of three disability incidence assumptions
- Updates to assumed final average salary adjustments for factors such as unused vacation and sick leave for most groups for Tier 1/Tier 2 members eligible under those provisions
- Updates to assumed lump sum and service purchase election rates
- Adjustments to post-retirement medical program assumptions
 - Participation levels (RHIA & RHIPA)
 - Healthcare inflation assumption for RHIPA program

Mortality Assumption

- For each group, the mortality assumption consists of two parts:
 - A **base table** – for a given age, lists a probability of death at that age
 - A **projection scale** – modifies base table entries to reflect anticipated continued mortality improvement over time
 - Reflects common-sense understanding that a new retiree today has a longer life expectancy than a new retiree 25 years ago...and that a new retiree 25 years from now is reasonably anticipated to have a longer life expectancy than a new retiree today
- We recommend continuing to use “Pub-2010” base tables from the Society of Actuaries (SOA) Public Plans Mortality Study published in January 2019
 - For School District males, we recommend using a blend of 80% teacher mortality and 20% general mortality, rather than 100% teacher mortality used previously
 - Consistent with recent experience for this group, and reasonable given that the school district workforce includes teachers and non-teachers

Mortality Assumption

- ORS 238.607: adopted actuarial equivalency factors *must use the best actuarial information on mortality available at the time*
 - We separately reviewed police and fire mortality per ORS 238.608
- We matched PERS experience to the SOA's Public Plans ("Pub-2010") base tables
 - PERS was one of the systems that contributed data to the study; in general the tables fit experience well
 - Calibrated to PERS experience as needed with "age set-backs" or other adjustments to standard table
- For mortality improvement projection scale, maintained approach adopted in prior experience study of using a projection scale based on 60-year average annual improvement from Social Security mortality experience
 - Updated to reflect most recent information available at the time (through 2017)
 - This update leads to slightly more projected mortality improvement (longer life expectancy) at most ages

Technical details on our recommendation and more information on the mortality assumption are in our formal Experience Study report

Mortality Assumption

- Illustrative effect of assumption changes for non-disabled retiree:

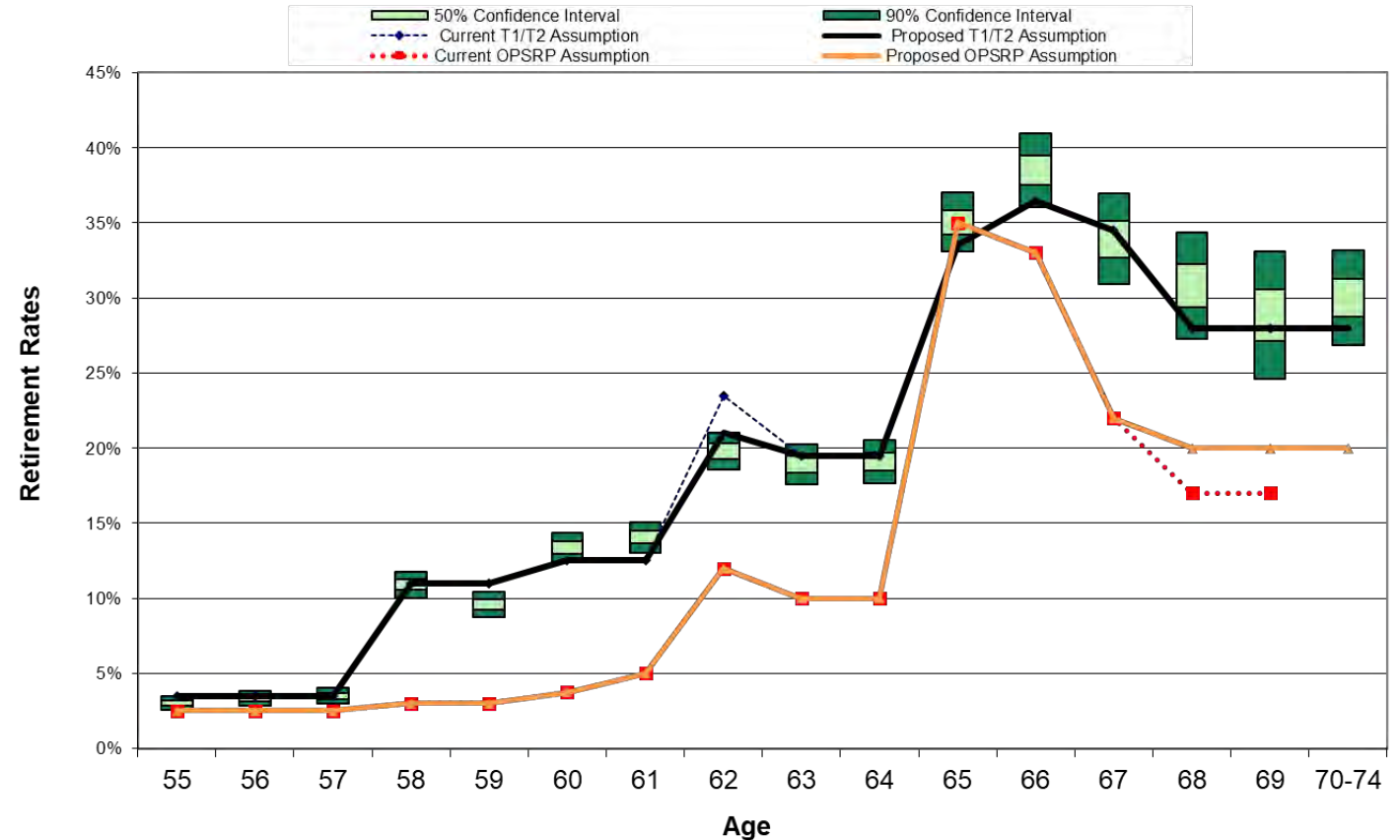
Future Life Expectancy (in years)	Retires at Age 60 in 2021			Retires at Age 60 in 2041		
	Current	New	Change	Current	New	Change
School District Male	27.9	27.7	-0.2	29.1	29.0	-0.1
General Service Male	27.1	27.2	0.1	28.5	28.7	0.2
Police & Fire Male	25.9	26.0	0.1	27.2	27.4	0.2
School District Female	30.0	30.2	0.2	31.2	31.4	0.2
General Service Female	28.7	28.9	0.2	30.0	30.2	0.2
Police & Fire Female	28.7	28.9	0.2	30.1	30.3	0.2

- The table above has three assumed preconditions, all of which serve to increase the life expectancy:
 - The individual is assumed to have already survived to age 60
 - The individual is assumed to have served in PERS-covered employment
 - The individual is assumed to not be disabled as of age 60

Rate of Retirement Assumption

- The likelihood that an eligible member retires at a given age
- Structure:
 - School District
 - Other General Service
 - Police & Fire
 - Divided into 3 service bands
 - Tier 1/Tier 2 vs. OPSRP
- Modifications made to assumptions at certain ages to more closely align with recent experience
 - Also extended age at which 100% retirement assumption starts to 70 for Police & Fire and 75 for all others

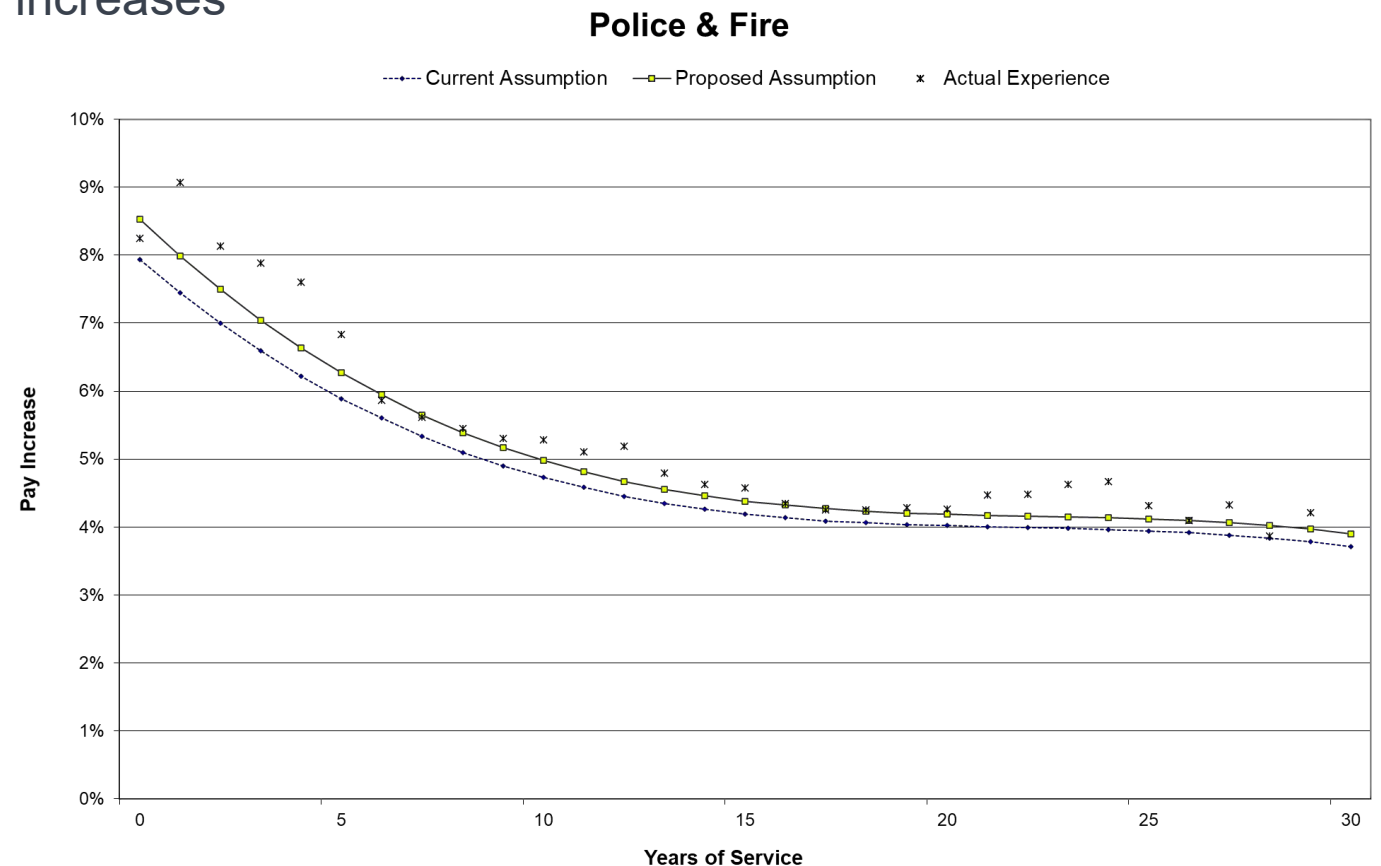
School District
Members with 15 - 29 Years of Service



Example shown above. Recommendations for other groups shown in detailed Experience Study report.

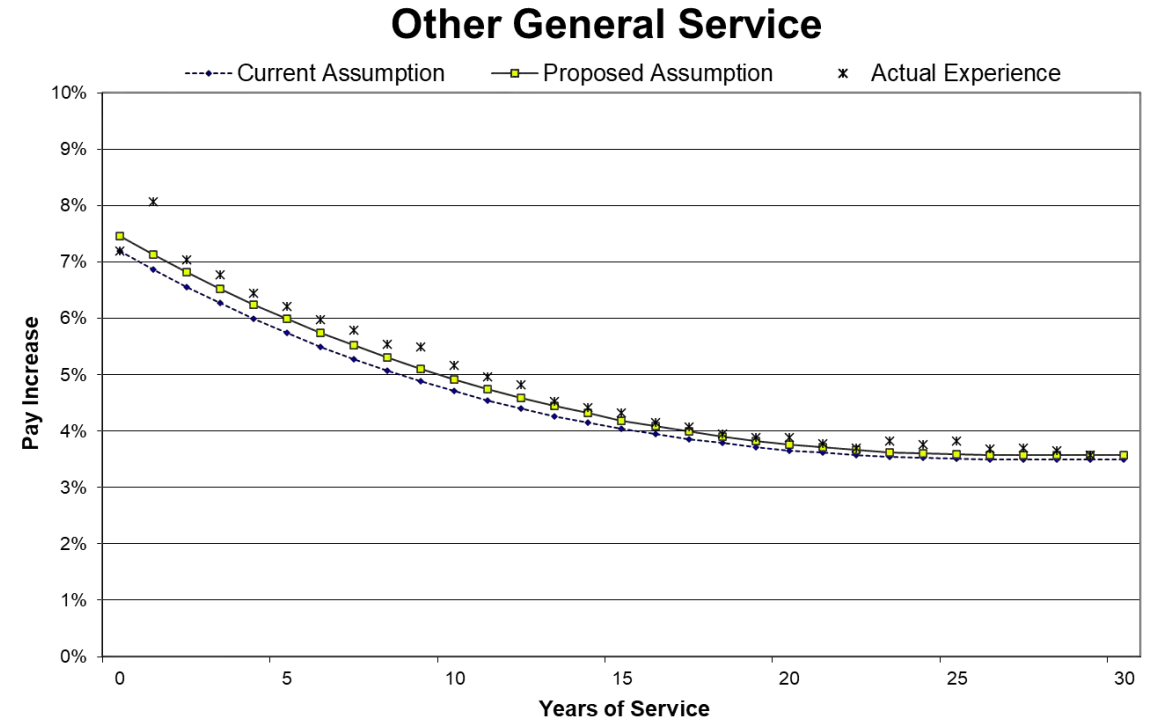
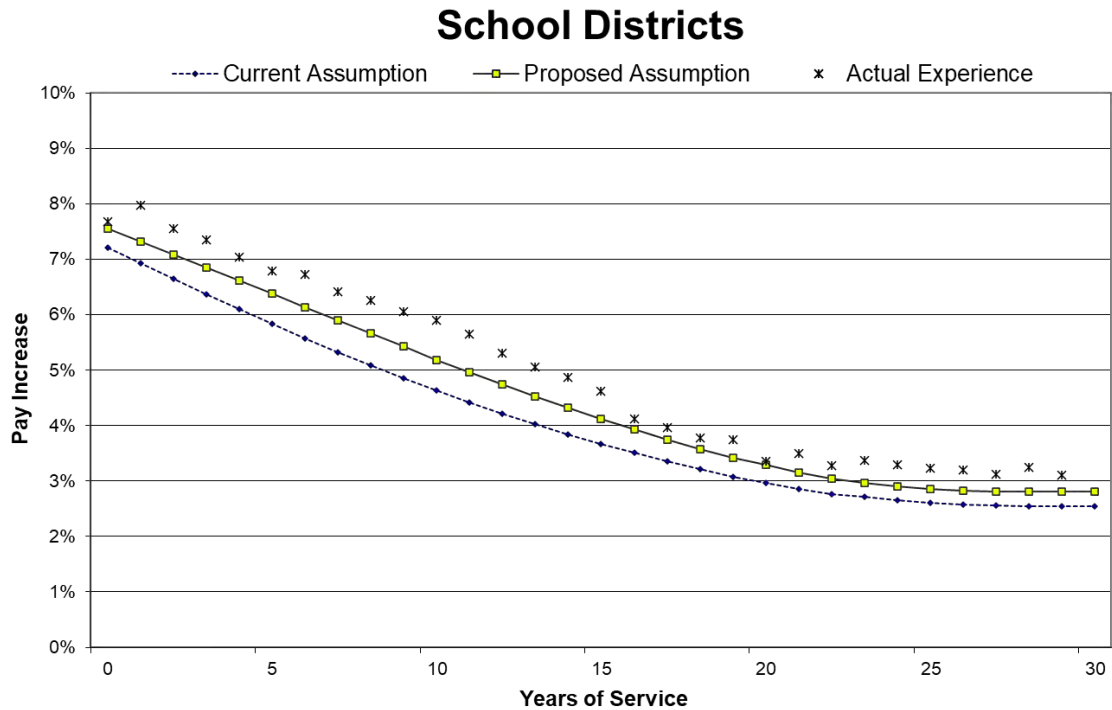
Individual Member Salary Increase Assumption

- Reflects combined effects of merit/longevity, general wage growth and inflation assumptions
 - Reviewed eight years of individual pay increases
- Structure:
 - School District
 - Other General Service
 - Police & Fire
- Actual recent experience was generally higher than the current assumption for each group
- In calculating actual experience, we removed experience years with significant one-off changes
 - Salary increases associated with elimination of pick-up
 - 2020 school district furloughs



Individual Member Salary Increase Assumption

- School District and Other General Service had higher increases than assumed

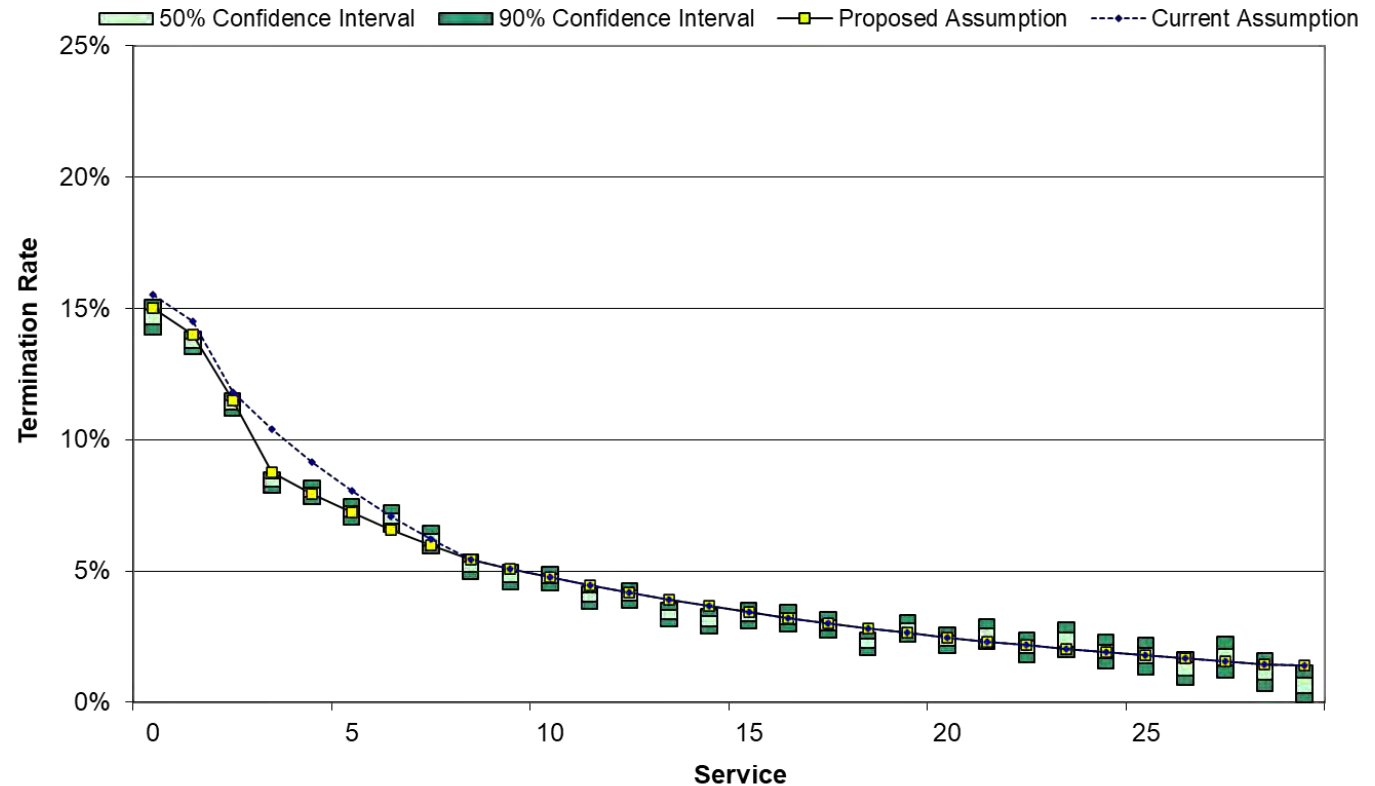


- Assumptions updated reflecting a blend of current assumption and recent observed experience

Pre-Retirement Employment Termination Assumption

- The likelihood that a member leaves employment at a given service level prior to retirement eligibility for reasons other than death or disability
- We recommend adjusting the early years of the assumption for one of the five groups
 - Reflects relatively minor, but statistically significant, differences between the current assumption and observed experience

Other General Service Female



Example shown above. Recommendations for other groups shown in detailed Experience Study report.

Final Average Salary Adjustments

- In the valuation, we apply assumptions regarding the increase in final average salary for Tier 1/Tier 2 members attributable to:
 - Unused sick leave
 - Lump sum distribution of vacation pay (only affects Tier 1)
- Only relevant when benefits are calculated using Full Formula or Formula Plus Annuity
- As remaining Tier 1/Tier 2 actives become a smaller and longer-service group, experience has generally increased (though the assumption applies to a smaller group)
- We adjusted our analysis to more heavily weight experience for higher liability members, and recommend some adjustments as shown below to more closely track recent experience:

Unused Sick Leave	Current Assumption	Proposed Assumption
State GS Male	7.00%	8.25%
State GS Female	3.75%	5.00%
School District Male	7.75%	9.50%
School District Female	5.75%	6.50%
Local GS Male	5.25%	7.25%
Local GS Female	3.50%	4.50%
State Police & Fire	4.00%	4.25%
Local Police & Fire	7.25%	7.50%
Inactive Members	3.25%	5.00%

Tier 1 Vacation Cash Out	Current Assumption	Proposed Assumption
State GS	2.25%	2.50%
School District	0.25%	0.25%
Local GS	3.25%	3.50%
State Police & Fire	2.75%	2.75%
Local Police & Fire	4.25%	4.75%

Member Redirect Offset

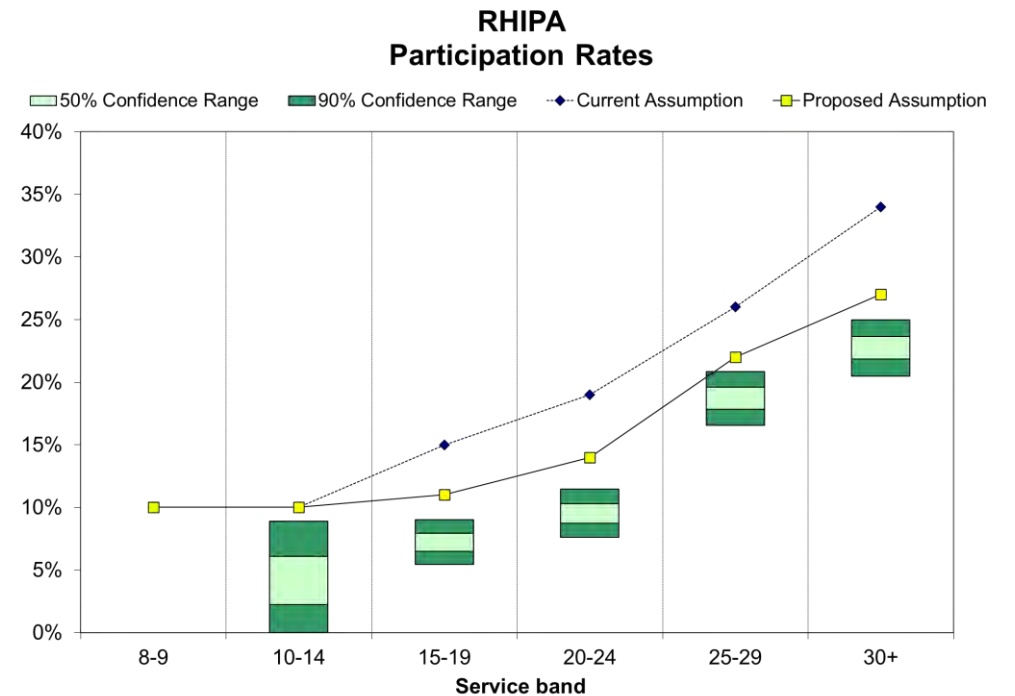
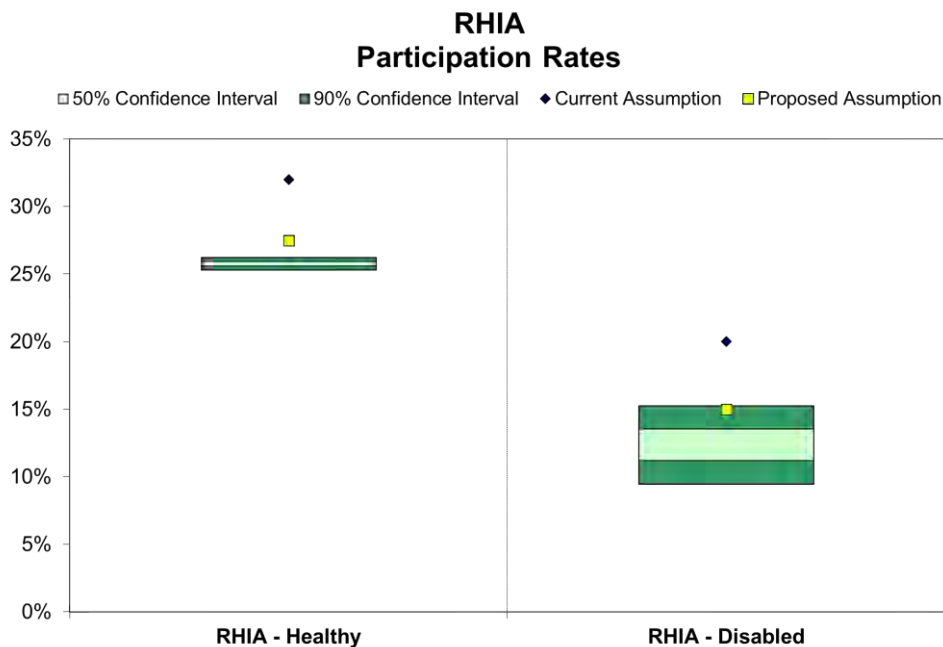
- Senate Bill 1049 redirected a portion of the 6% of pay member contributions to Employee Pension Stability Accounts (EPSAs) that help fund the Tier 1/Tier 2 and OPSRP programs
 - 2.50% of pay for Tier 1/Tier 2 and 0.75% of pay for OPSRP
 - Both originally only applied to members with salary greater than \$2,500 per month (indexed)
 - House Bill 2906 modifies this level to \$3,333 per month effective in 2022
 - Applies when funded status (including side accounts) is less than 90% in the rate-setting valuation
- The 2021-2023 employer contribution rates adopted by the Board in October 2020 were based on SB 1049 and reflect projected system-average member redirect offset contributions of:
 - 2.45% of Tier 1/Tier 2 payroll
 - 0.70% of OPSRP payroll
- The 0.05% of payroll difference between the actual offset for affected members and the assumed system-wide effect of the redirect reflects the estimated effect of SB 1049's \$2,500 (indexed) monthly pay threshold

Member Redirect Offset

- For the 2023-2025 biennium, the member redirect is expected to continue to apply (the relevant funded status is unlikely to exceed 90% by 12/31/2021)
- Based on the updated pay threshold and the member salary distribution from the most recent valuation, for calculation of 2023-2025 employer contribution rates we recommend the Board adopt projected system-average member redirect offsets of:
 - 2.40% of Tier 1/Tier 2 payroll
 - 0.65% of OPSRP payroll
- The increase from 0.05% to 0.10% of payroll for the estimated effect of the pay threshold provisions is due to the change in the threshold from \$2,500 to \$3,333 made by HB 2906

RHIA and RHIPA Assumptions

- Updates to retiree healthcare participation assumptions based on observed experience:
 - Healthy RHIA: Lower participation rate from 32.0% to 27.5%
 - Disabled RHIA: Lower participation rate from 20% to 15%
 - RHIPA: Lower rates in longer-service categories
- Health care cost trend assumption applied to RHIPA full subsidy amount was also updated
 - Based on analysis by Milliman health actuaries



Estimated Effect of Assumption Changes

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Preliminary Effect of Changes – Liability

- Estimated effect on combined Tier 1, Tier 2, and OPSRP liabilities based on preliminary valuation work

12/31/2020 Accrued Liability	Assumed Return 7.2%	Assumed Return 7.0%	Assumed Return 6.9%	Assumed Return 6.8%	Assumed Return 6.6%
Current assumptions	\$91.8 B				
Salary/sick lv/vacation	\$0.3 B				
Other demographic assumptions	<u>\$0.0 B</u>				
Revised assumptions (before assumed return)	\$92.2 B	\$92.2 B	\$92.2 B	\$92.2 B	\$92.2 B
Assumed return	<u>\$0.0 B</u>	<u>\$2.0 B</u>	<u>\$3.0B</u>	<u>\$4.0 B</u>	<u>\$5.9B</u>
Revised assumptions	\$92.2 B	\$94.1 B	\$95.1 B	\$96.1 B	\$98.1 B

Numbers shown may not add due to rounding

Preliminary Effect of Changes – Uncollared 2023-2025 Rates

- Estimated impact on uncollared system-average advisory pension rates for 2023-2025 based on preliminary valuation work
 - Results do not reflect any adjustment for already known 2021 asset returns

	Assumed Return 7.2%		Assumed Return 7.0%		Assumed Return 6.9%		Assumed Return 6.8%	
	UAL	Normal Cost	UAL	Normal Cost	UAL	Normal Cost	UAL	Normal Cost
Salary/sick lv/vaca	0.2%	0.4%	0.2%	0.4%	0.2%	0.4%	0.2%	0.4%
Other assumptions	(0.1%)	0.0%	(0.1%)	0.0%	(0.1%)	0.0%	(0.1%)	0.0%
Assumed return	<u>0.0%</u>	<u>0.0%</u>	<u>0.9%</u>	<u>0.6%</u>	<u>1.4%</u>	<u>0.8%</u>	<u>1.9%</u>	<u>1.1%</u>
Total	0.1%	0.4%	1.0%	0.9%	1.5%	1.2%	1.9%	1.5%
Combined Total	0.4%		1.9%		2.7%		3.4%	

Changes shown are stated as a percent of payroll, reflect a 3.40% payroll growth assumption, and exclude changes for the RHIA & RHIPA programs. Numbers may not add due to rounding.

Agenda Items – Remaining 2021 Meetings

- Needed action before completion of actuarial valuations:
 - Adoption of assumptions and methods for use in the following valuations:
 - December 31, 2020 “advisory” valuation that estimates 2023-2025 rates
 - December 31, 2021 valuation that calculates recommended 2023-2025 rates
- October meeting:
 - Presentation of system-level December 31, 2020 actuarial valuation results
 - Adoption of actuarial equivalency factors effective January 1, 2022
- December meeting:
 - Acceptance of the December 31, 2020 actuarial valuation report and employer-specific advisory 2023-2025 contribution rates
 - Financial modeling over the next twenty years under a variety of possible future scenarios for actual investment return



Appendix

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Certification

This presentation discusses actuarial methods and assumptions for use in the valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”). For the most recent complete actuarial valuation results, including cautions regarding the limitations of use of valuation calculations, please refer to our formal Actuarial Valuation Report as of December 31, 2019 (“the Valuation Report”) published on September 17, 2020. The Valuation Report, including all supporting information regarding data, assumptions, methods, and provisions, is incorporated by reference into this presentation. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation. The Valuation Report, along with prior presentations to the PERS Board, including the December 2020, February 2021, and March 2021 presentations to the PERS Board should be referenced for additional detail on the data, assumptions, methods, and plan provisions underlying this presentation. Preliminary December 31, 2020 valuation results shown in the presentation reflect data provided as of that date, which will be summarized in our forthcoming December 31, 2020 actuarial valuation report later this year.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by the System’s staff as well as capital market expectations provided by Meketa, capital market information published by Horizon Actuarial Services, and information presented to the Oregon Investment Council. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The 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.

In assessing the Milliman capital market expectations presented in this report, per Actuarial Standards of Practice we disclose reliance upon a model developed by Milliman colleagues who are credentialed investment professionals with expertise in capital outlook modeling.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which in our professional opinion 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. The valuation results were developed using models intended for valuations that use standard actuarial techniques.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan 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 plan’s funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. Our annual financial modeling presentation to the PERS Board should be referenced for additional analysis of the potential variation in future measurements. The PERS Board has the final decision regarding the assumptions used in the actuarial valuation.

Certification

The calculations in this report have been made on a basis consistent with our understanding of the plan provisions described in the appendix of the Valuation Report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of the Oregon Public Employees Retirement System. Milliman does not intend to benefit or create a legal duty to any third-party recipient of its work product.

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

The consultants who worked on this assignment are retirement 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 which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Appendix

Data

Except where noted, our analysis of demographic assumptions was based on data for the experience period from January 1, 2017 to December 31, 2020 as provided by the Oregon Public Employees Retirement System (PERS). PERS is solely responsible for the validity, accuracy and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

Member data was summarized according to the actual and potential member decrements during each year. Actual and potential decrements were grouped according to category of employment, sex, age, and/or service depending on the demographic assumption.

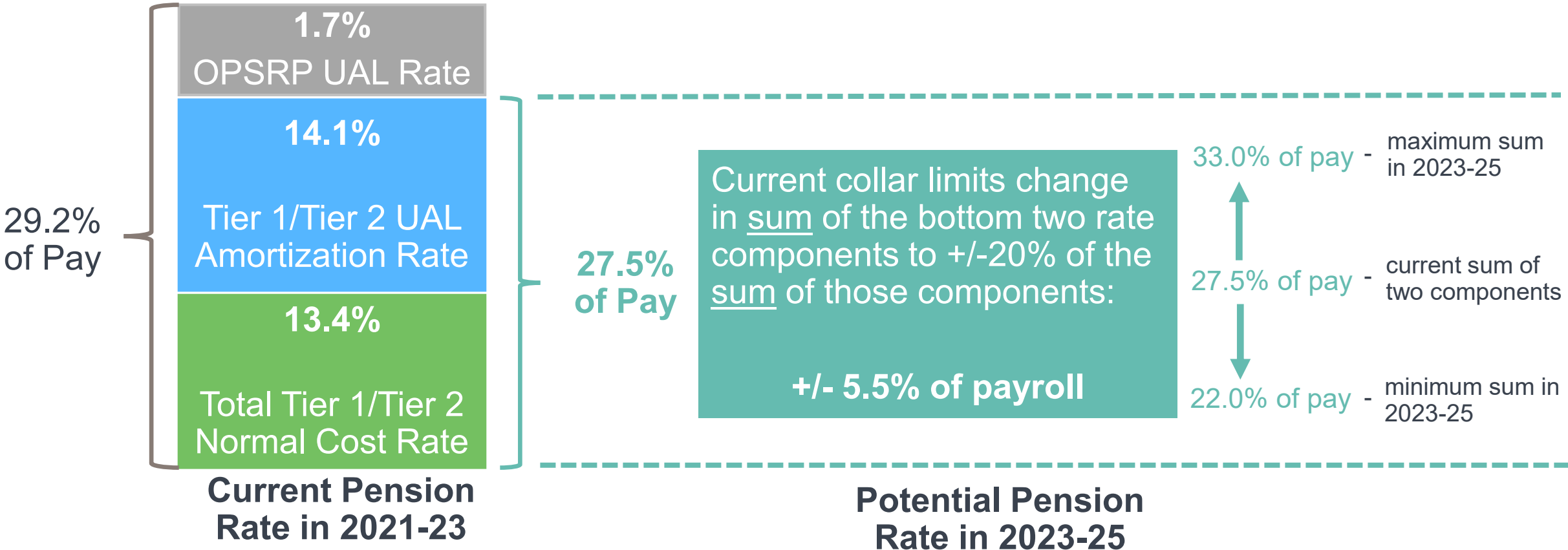
Where possible, we attempted to identify decrements that were spread across two calendar years (for example, if a member retired in one year, but didn't commence benefits until January 1 of the following year) so that we could reflect these decrements as individual events.

In order to capture experience across a broader range of budget, collective bargaining, and economic cycles, our analysis of salary increases covered observed salary experience from 2012 through 2020 as provided by PERS.

Our analysis focused on observed salary levels during consecutive calendar years for members who remained in active employment across both years, so that the observed change in salary would not be influenced by the reduced number of months worked during a year in which the member decrements. Similarly, we focused on experience above the 5th percentile and below the 95th percentile of observed salary increases in order to avoid the potential distorting effect of including extreme salary changes that likely resulted from unusual events.

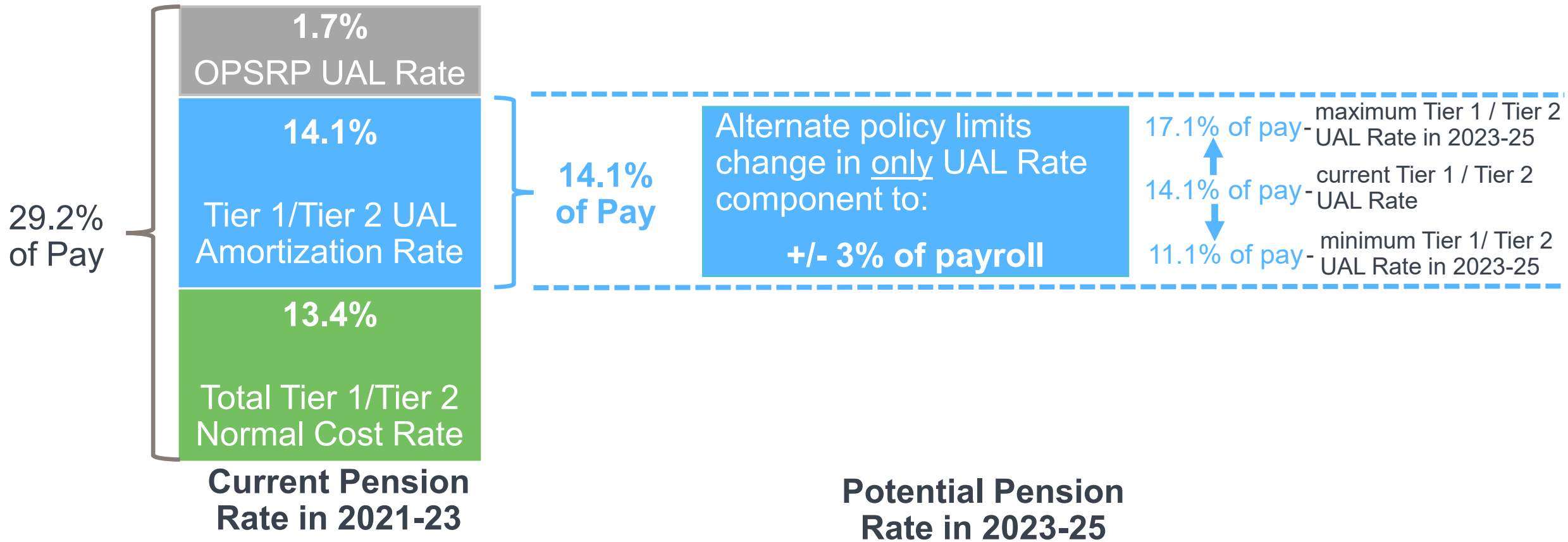
Rate Collar – Current Policy Limits Sum of Two Rate Components

- School district without a side account – pension contribution rate on Tier 1/Tier 2 payroll



Rate Collar – Alternate Policy Limits Only UAL Rate Components

- School district without a side account – pension contribution rate on Tier 1 / Tier 2 payroll



Appendix

Actuarial Basis

Capital Market Assumptions – Milliman Real Return Outlook Adjusted for 2.40% Inflation Assumption

For assessing the expected portfolio return under Milliman’s capital market assumptions (adjusted for inflation assumption shown below), we considered the Oregon PERS Fund to be allocated among the model’s asset classes as shown below. This allocation is based on input provided by Meketa (OIC’s primary consultant) and reflects proposed changes to the Oregon Investment Council’s target allocation for the Oregon PERS Fund that are expected to be adopted in June 2021.

	Annual Arithmetic Mean	20-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
Global Equity	7.11%	5.85%	17.05%	30.62%
Private Equity	11.35%	7.71%	30.00%	25.50%
US Core Fixed Income	2.80%	2.73%	3.85%	23.75%
Real Estate	6.29%	5.66%	12.00%	12.25%
Master Limited Partnerships	7.65%	5.71%	21.30%	0.75%
Infrastructure	7.24%	6.26%	15.00%	1.50%
Commodities	4.68%	3.10%	18.85%	0.63%
Hedge Fund of Funds – MultiStrategy	5.42%	5.11%	8.45%	1.25%
Hedge Fund Equity-Hedge	5.85%	5.31%	11.05%	0.63%
Hedge Fund – Macro	5.33%	5.06%	7.90%	5.62%
US Cash	1.77%	1.76%	1.20%	(2.50%)
US Inflation (CPI-U)		2.40%	1.65%	N/A
Fund Total (reflecting asset class correlations)	7.06%	6.31%*	13.08%	100.00%

* Reflects 0.09% average reduction to model passive investment expenses. The model does not try to assess the actual investment expenses for active management. The model’s 20-year annualized geometric median is 6.27%.

Appendix

Actuarial Basis

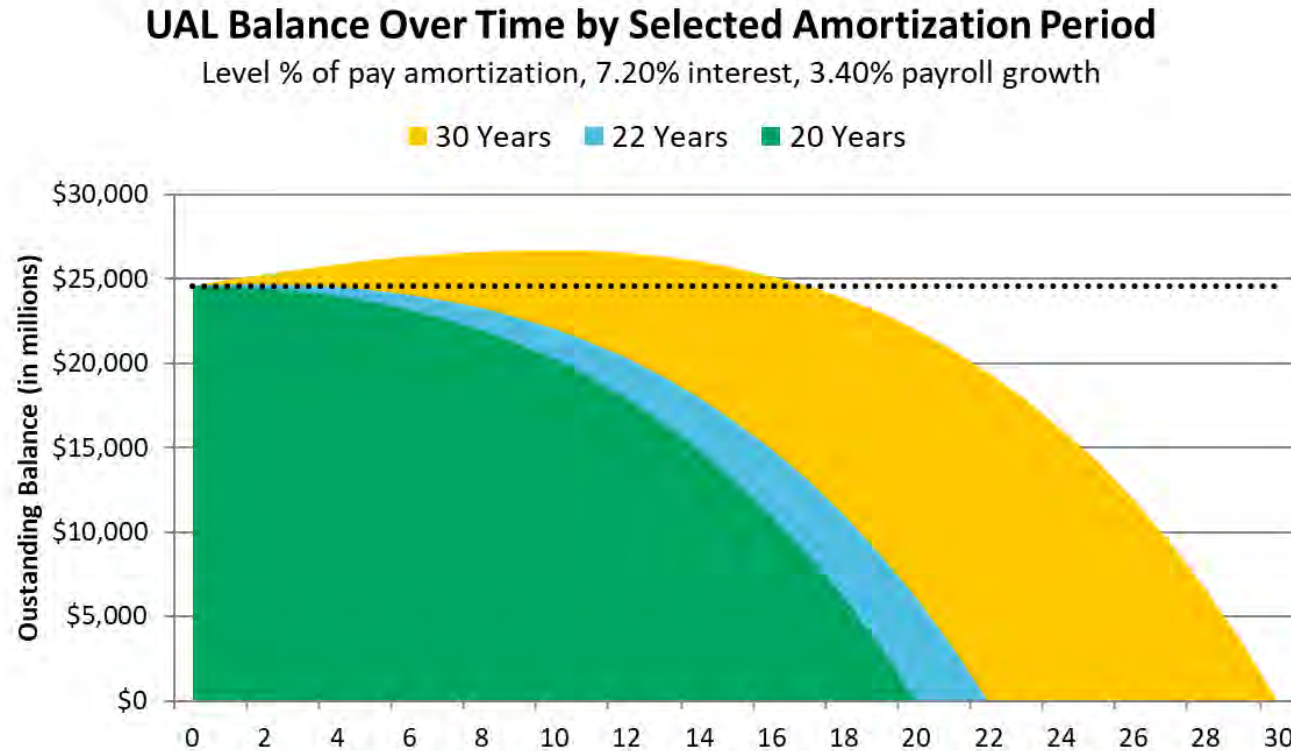
Capital Market Assumptions - Horizon

For assessing the expected portfolio return under an additional set of capital market assumptions, we applied the assumptions from the 2020 Survey of Capital Market Assumptions published by Horizon Actuarial Services, LLC. According to the survey report, the 10-year return assumptions shown below represent an average of the expectations for 39 investment advisors responding to the survey.

	10-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
US Equity – Large Cap	6.16%	16.22%	13.78%
Non-US Equity – Developed	6.80%	18.05%	13.78%
Non-US Equity – Emerging	7.85%	24.23%	3.06%
US Corporate Bonds – Core	2.60%	5.47%	23.75%
US Treasuries (Cash Equivalents)	1.56%	1.78%	(2.50%)
Real Estate	5.75%	16.84%	12.25%
Hedge Funds	4.74%	8.00%	7.50%
Commodities	3.19%	17.60%	0.63%
Infrastructure	6.94%	14.58%	2.25%
Private Equity	9.08%	21.99%	25.50%
Inflation	1.98%		N/A
Fund Total (reflecting asset class correlations)	6.87%*		100.00%

* 10-year annualized geometric median is **6.80%**.

Remaining Balances for 20-, 22-, & 30-Year Amortizations

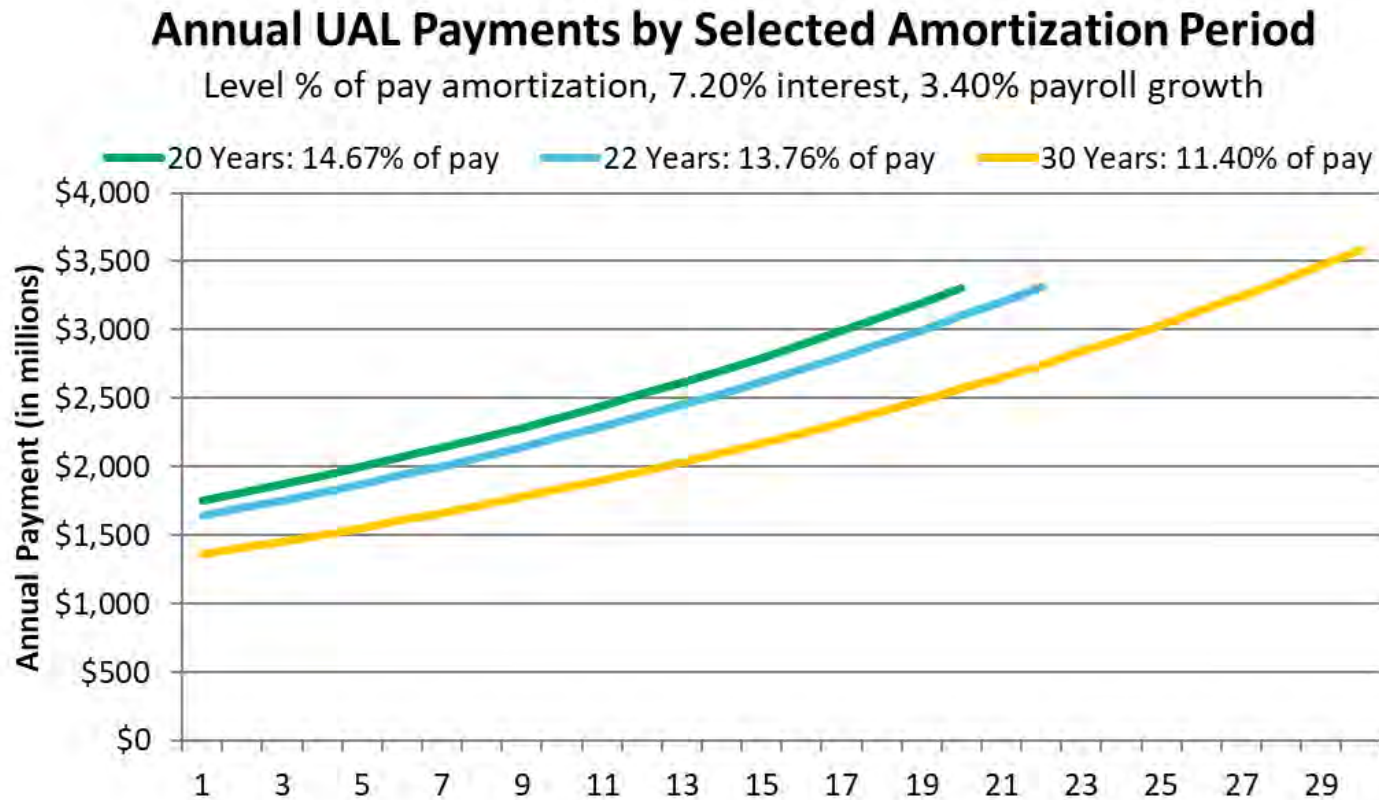


Current ongoing policy

- Tier 1 / Tier 2:
20 years
- OPSRP:
16 years

- **Why 20 years or less?** If actual experience matches the assumption...
 - with 22 years zero progress is made in decreasing the initial UAL until year 4
 - with 30 years the UAL has increased by about 9% after the first decade, and zero progress is made in decreasing the initial UAL until year 17

Illustration of UAL Amortization Periods



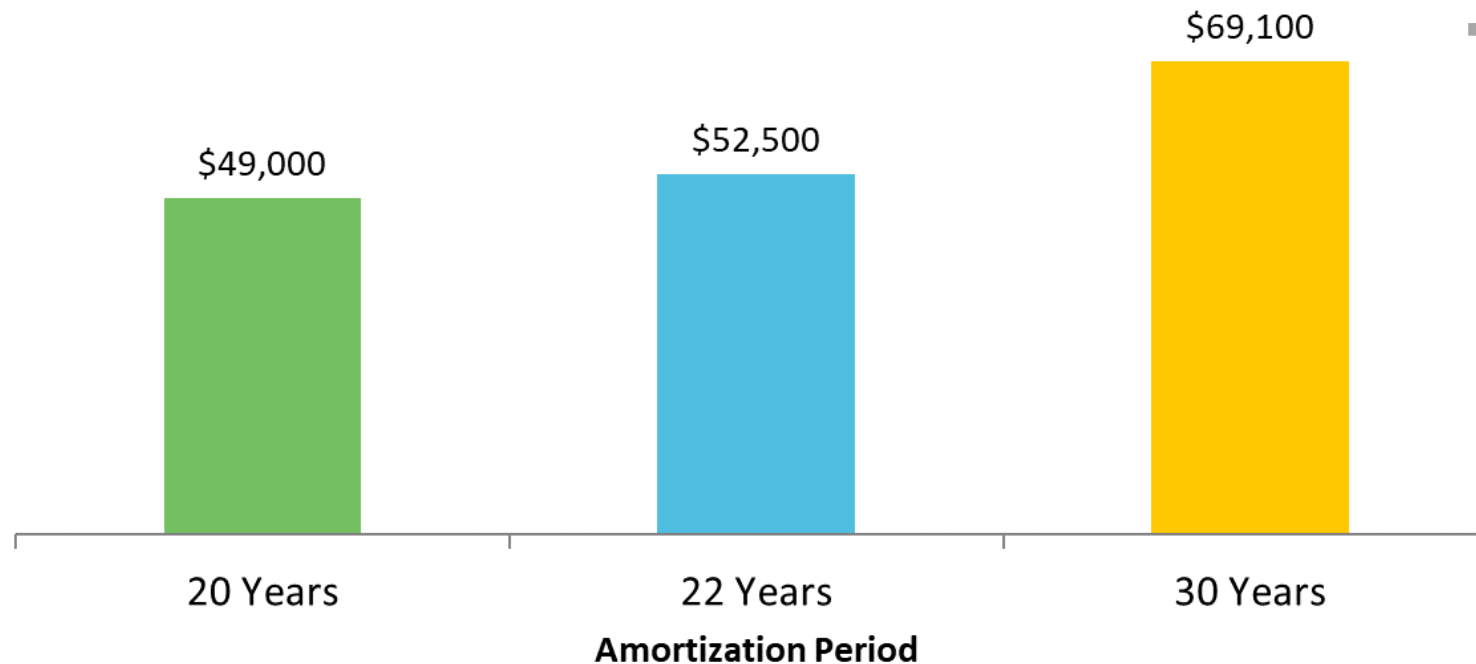
Current policy

- Tier 1 / Tier 2:
20 years
- OPSRP:
16 years

Illustration of UAL Amortization Periods

Total Repayment (\$M) by Selected Amortization Period

Level % of pay amortization, 7.20% assumed return, 3.40% payroll growth



This illustrates total amortization payments for a \$24.6 billion shortfall over periods of 20, 22 or 30 years

Current policy

- Tier 1 / Tier 2:
20 years
- OPSRP:
16 years

Effects of Lowering the Assumed Return

- Lowering the assumption to 6.90% or 6.80% would affect the Money Match calculation for a member age 59½ with a \$135,000 member account balance as of 6/30/2021 as shown:

Benefit Commencement	Starting Benefit Under Assumed Rate*		
	7.20%	6.90%	6.80%
7/1/2021	\$1,895		
12/1/2021	\$1,959		
1/1/2022		\$1,921	\$1,904
4/1/2022		\$1,961	\$1,941
6/1/2022		\$1,986	\$1,968

* Illustration uses 2020 actuarial equivalency mortality in calculation of all benefits

- At a 6.80% assumption, it would take about six months without retirement for the December 2021 initial benefit level to be reached
- At a 6.90% assumed return, it would take about four months
- Illustration ignores Full Formula “floor”, which may mitigate any benefit decrease

Mortality Assumption

	Current Assumption	Proposed Changes
Healthy Retired	Pub-2010 Generational, with unisex Social Security scale (1955-2015 experience) Healthy Retiree, Sex distinct	Pub-2010 Generational, with unisex Social Security scale (1957-2017 experience) Healthy Retiree, Sex distinct
<ul style="list-style-type: none"> School district male Other GS male P&F male 	Teachers, no set back General Employees, set back 1 year Public Safety, no set back	Blend 80% Teachers/20% General Employees, no set back General Employees, set back 1 year Public Safety, no set back
<ul style="list-style-type: none"> School district female Other GS female P&F female 	Teachers, no set back General Employees, no set back Public Safety, set back 1 year	Teachers, no set back General Employees, no set back Public Safety, set back 1 year
Disabled Retired	Pub-2010 Disabled, Generational with unisex Social Security scale (1955-2015) Sex distinct	Pub-2010 Disabled, Generational with unisex Social Security scale (1957-2017) Sex distinct
<ul style="list-style-type: none"> P&F male Other male P&F female Other female 	50% Public Safety/50% Non-Safety, no set back Non-Safety, set forward 2 years 50% Public Safety/50% Non-Safety, no set back Non-Safety, set forward 1 year	50% Public Safety/50% Non-Safety, no set back Non-Safety, set forward 2 years 50% Public Safety/50% Non-Safety, no set back Non-Safety, set forward 1 year
Non-Retired Mortality	Pub-2010 Generational, with unisex Social Security scale (1955-2015) Employee (Non-Annuitant), Sex distinct	Pub-2010 Generational, with unisex Social Security scale (1957-2017) Employee (Non-Annuitant), Sex distinct
<ul style="list-style-type: none"> School district male Other GS male P&F male 	Teachers, no set back, scaled 120% General Employees, set back 1 year, scaled 115% Public Safety, no set back, not scaled	Blend 80% Teachers/20% General Employees, no set back, scaled 125% General Employees, set back 1 year, scaled 115% Public Safety, no set back, not scaled
<ul style="list-style-type: none"> School district female Other female 	Teachers, no set back, not scaled General Employees, no set back, scaled 125% Public Safety, set back 1 year, not scaled	Teachers, no set back, not scaled General Employees, no set back, scaled 125% Public Safety, set back 1 year, not scaled

Retirement System Risks

- Oregon PERS, like all defined benefit plans, is subject to various risks that will affect future plan liabilities and contribution requirements, including:
 - **Investment risk:** the potential that investment returns will be different than expected
 - **Demographic risks:** the potential that mortality experience, retirement behavior, or other demographic experience for the plan population will be different than expected
 - **Contribution risk:** the potential that actual future contributions will be materially different than expected, for example if there are material changes in the System's covered payroll
- The results of an actuarial valuation are based on one set of reasonable assumptions, but it is almost certain that future experience will not exactly match the assumptions.
- Further discussion of plan risks and historical information regarding plan experience are shown in our annual actuarial valuations. In addition, our annual financial modeling presentation to the PERS Board illustrates future outcomes under a wide range of future scenarios reflecting variation in key risk factors.



OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

2020 Experience Study

Prepared by:

Milliman, Inc.

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July 20, 2021

Board of Trustees
Oregon Public Employees Retirement System

Re: 2020 Experience Study – Oregon Public Employees Retirement System

Dear Members of the Board:

The results of an actuarial valuation are based on the actuarial methods and assumptions used in the valuation. These methods and assumptions are used in developing employer contribution rates, disclosing employer liabilities pursuant to GASB requirements, and for analyzing the fiscal impact of proposed legislative amendments.

This experience study report has been prepared exclusively for the Oregon Public Employees Retirement System (PERS) and its governing PERS Board (Board). **The study recommends to the Board the actuarial methods and assumptions to be used in the December 31, 2020 and 2021 actuarial valuations of PERS. The latter actuarial valuation will be used to determine employer contribution rates for the 2023-2025 biennium.**

Except where otherwise noted, the analysis in this study was based on data for the experience period from January 1, 2017 to December 31, 2020 as provided by PERS. PERS is solely responsible for the validity, accuracy, and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

This analysis also relied, without audit, on information (some oral and some in writing) supplied by PERS staff as well as a capital market outlook provided by Meketa, survey capital market outlook information published by Horizon Actuarial Services, and information presented to the Oregon Investment Council. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The 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. In assessing the Milliman capital market outlook presented in this report, per Actuarial Standards of Practice we disclose reliance upon a model developed by Milliman colleagues who are credentialed investment professionals with expertise in capital outlook modeling.

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recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries and, for the analysis of the RHIPA program, healthcare actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. 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 which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. Assumptions related to the healthcare trend rates for the RHIPA program discussed in this report were determined by Milliman actuaries qualified in such matters.

Sincerely,



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



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

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1. Executive Summary

This experience study report has been prepared exclusively for the Oregon Public Employees Retirement System (PERS) and the PERS Board (Board) in order to analyze the system's experience from January 1, 2017 through December 31, 2020 and to recommend actuarial methods and assumptions to be used in the December 31, 2020 and 2021 actuarial valuations of PERS.

A summary of the recommended method and assumption changes contained in this report as well as items reviewed at the May 2021 and/or July 2021 Board meetings follows:

Economic Assumptions

- Reduce the long-term inflation assumption from the current 2.50% to **2.40% or lower**.
- Reduce the system payroll growth assumption from the current 3.50% to **3.40% or lower**, paralleling the change in inflation.
- In our professional opinion, the current investment return assumption of 7.20% per year should be lowered **at least 0.20%**, based on an analysis of PERS's current target asset allocation using several capital market outlook models. In addition, we recommend the PERS Board consider reducing the assumption further to more closely reflect the current range of outlooks. The median annualized geometric return for the 20-year outlook developed by the Oregon State Treasury staff in collaboration with Oregon Investment Council advisors Meketa and Aon was **6.6%**, with an underlying inflation assumption of 2.1%. Using the implied 4.5% real return from that model along with a 2.40% inflation assumption based on Social Security's outlook would produce an expected return of **6.9%**. The median annualized geometric return for a 20-year time horizon based on Milliman's December 31, 2020 capital market outlook real return and a 2.40% underlying inflation assumption was 6.27%.
- Update the assumption for future administrative expenses and use a combined assumption amount for the Tier 1/Tier 2 and OPSRP programs.
- Update the RHIPA health cost trend (i.e., healthcare cost inflation) assumption.

Demographic Assumptions

- Adjust the base mortality table assumption for School District males and make a routine update to the mortality improvement scale for all groups, based on 60-year unisex average Social Security experience.
- Adjust retirement rates for certain member categories and service bands to more closely align with recent and expected future experience and increase the age of 100% likelihood of assumed retirement by five years for all groups; reduce the percentage of future retirees assumed to elect a partial lump sum; increase the percentage of members assumed to purchase credited service at retirement.
- Increase the merit component of the individual member salary increase assumption for all member categories based on observations of the last eight years of experience. The individual member salary increase assumption consists of the sum of inflation, real wage growth, and merit components, with the latter varying by member.
- Update pre-retirement termination of employment assumptions for one member category.
- Lower assumed rates of ordinary (non-duty) disability and general service duty disability incidence.
- Increase the Tier 1 unused vacation cash out assumption for three member categories.
- Increase the Tier 1/Tier 2 unused sick leave assumption for all member categories to reflect recently observed experience and to more heavily weight experience from higher liability retirees.
- Decrease the healthy and disabled likelihood of program participation assumptions for the RHIA retiree healthcare program.
- Decrease the RHIPA likelihood of program participation assumption for most service bands.

Actuarial Methods

- Revise the parameters of the rate collar methodology to only restrict changes in the Unfunded Actuarial Liability (UAL) Rate contribution rate component and to narrow the width of allowable changes. Collar width will vary depending on the rate pool. No decrease in UAL Rate will be allowed unless a funded status threshold is met, using funded status excluding side accounts.
- Introduce a methodology for UAL Rate amortization in the RHIA or RHIPA programs when one or both are in an actuarial surplus position (over 100% funded). The methodology will create a UAL Rate credit that could partially or fully offset the Normal Cost Rate if the program is in actuarial surplus.
- Update the assumed system-average level of member redirect contributions to Tier 1/Tier 2 and OPSRP reflecting the projected effects of HB 2906, which was passed in June 2021.

2. Actuarial Methods and Allocation Procedures

Overview

Actuarial methods and allocation procedures are used as part of the valuation to determine actuarial accrued liabilities, to determine normal costs, to allocate costs to individual employers and to amortize unfunded liabilities. The following Board guiding objectives were considered in developing recommended actuarial methods and allocation procedures:

- Transparency of shortfall and funded status calculations
- Predictable and stable employer contribution rates
- Protection of the plan’s funded status to enhance benefit security for members
- Equity across generations of taxpayers funding the program
- Actuarial soundness - crafting policy that will fully fund the system if assumptions are met
- Compliance with GASB (Governmental Accounting Standards Board) requirements

The actuarial methods used for the December 31, 2019 actuarial valuation and the changes recommended for the December 31, 2020 and 2021 actuarial valuations are shown in the table below.

Method	December 31, 2019 Valuation	December 31, 2020 and 2021 Valuations
Cost method	Entry Age Normal (EAN)	No change
UAL Amortization method	UAL amortized as a level percent of combined Tier 1/Tier 2 and OPSRP payroll	No change
UAL Amortization period	<ul style="list-style-type: none"> ▪ UAL bases – Closed amortization from the first rate-setting valuation in which experience is recognized <ul style="list-style-type: none"> – Tier 1/Tier 2 – UAL re-amortized over 22 years effective December 31, 2019 as directed by Senate Bill 1049 – OPSRP – 16 Years – RHIA/RHIPA charges – 10 years – RHIA/RHIPA credits – not amortized ▪ Newly established side accounts – Aligned with the new Tier 1/Tier 2 base from the most recent rate-setting valuation ▪ Newly established transition liabilities or surpluses – 18 years from the date joining the SLGRP (State & Local Government Rate Pool) 	<p>No change to OSRP and RHIA/RHIPA UAL charges, side accounts, and transition liabilities or surpluses.</p> <p>RHIA/RHIPA credits – amortized over a rolling 20 year period when in actuarial surplus (funded status > 100%)</p> <p>Future Tier 1/Tier 2 UAL gains or losses will be amortized over 20 years. The closed period amortization under Senate Bill 1049 will continue to decline, and will have 20 years remaining as of the December 31, 2021 rate-setting valuation.</p>
Asset valuation method	Market value	No change

Method	December 31, 2019 Valuation	December 31, 2020 and 2021 Valuations
Exclusion of reserves from valuation assets	Contingency Reserve, Capital Preservation Reserve, and Tier 1 Rate Guarantee Reserve (RGR) excluded from valuation assets. RGR is not excluded from valuation assets when RGR is negative (i.e., when the RGR is a deficit reserve).	No change
Allocation of Benefits in Force (BIF) Reserve	The BIF is allocated to each rate pool in proportion to the retiree liability attributable to the rate pool.	No change
Rate collar	<p>Change in the sum of Normal Cost Rate and UAL Rate base contribution rate components limited (i.e., collared) to greater of 20% of the sum of the current base rate components or 3% of payroll. Size of collar doubles if funded percentage excluding side accounts falls below 60% or increases above 140%. If the funded percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale. Exclude RHIA and RHIPA (retiree medical) rates from the rate collar calculation.</p> <p>Collar calculations are done separately for each rate pool.</p>	<p>Change in UAL Rate contribution rate component limited to:</p> <ul style="list-style-type: none"> • 3% of payroll for Tier 1/Tier 2 SLGRP (State & Local Government Rate Pool) and Tier 1/Tier 2 School District Rate Pool • 1% of payroll for OPSRP • 4% of payroll for Tier 1/Tier 2 UAL Rate of independent employers, but not less than one-third of the difference between the uncollared and collared UAL Rate <p>Additionally, the UAL Rate would not be allowed to decrease for a rate pool until the pool's funded percentage excluding side accounts is over 87% and would not reflect the full collar width until reaching 90% funded.</p>
Liability allocation for actives with multiple employers	<ul style="list-style-type: none"> ▪ Allocate Actuarial Accrued Liability 10% (0% for police & fire) based on account balance with each employer and 90% (100% for police & fire) based on service with each employer 	No change
	<ul style="list-style-type: none"> ▪ Allocate Normal Cost to current employer 	No change
System-average offset for member redirect contributions	<ul style="list-style-type: none"> ▪ 2.45% of Tier 1/Tier 2 payroll ▪ 0.70% of OPSRP payroll 	<ul style="list-style-type: none"> ▪ 2.40% of Tier 1/Tier 2 payroll ▪ 0.65% of OPSRP payroll

The methods and procedures are described in greater detail on the following pages.

Actuarial Cost Method

The total contribution cost of the program, over time, will be equal to the benefits paid less actual investment earnings and is not affected directly by the actuarial cost method. The actuarial cost method is simply a tool to allocate projected costs to past, current or future years and thus primarily affects the timing of cost recognition.

The December 31, 2019 valuation used the Entry Age Normal (EAN) actuarial cost method, which allocates costs as a level percentage of payroll across the full projected working career. EAN is the required method under governmental financial reporting standards, though the Board could choose to use a different method for employer contribution rate calculations. Oregon PERS adopted EAN for all purposes with the December 31, 2012 valuation. Employing a consistent cost allocation method for both financial reporting and contributions is more understandable to interested parties as only one set of liability and normal cost calculations will be made for each member, employer, and rate pool. The EAN approach is widely used in the actuarial and public plan sponsor community because it provides an actuarially sound estimate of the projected long-term contribution costs of a retirement program as a level percentage of payroll if all assumptions are met. The benefits of this method are unchanged from when the Board previously adopted it, and we recommend continuing to use the EAN actuarial cost method.

Amortization Method

Unfunded Actuarial Liability

The unfunded actuarial liability (UAL) is amortized as a level percentage of projected combined payroll (Tier 1/Tier 2 plus OPSRP) in order to better maintain level contribution rates as payroll for the closed group of Tier 1/Tier 2 members declines and payroll of OPSRP members increases. We recommend this methodology continue.

The Board-selected method in recent years has been to amortize UAL over the following closed periods as a level percent of projected payroll from the first rate-setting valuation in which the experience is recognized:

- Tier 1/Tier 2 – 20 years
- OPSRP – 16 years
- RHIA/RHIPA charges when funded status is below 100% – 10 years

As part of a collection of method changes made with the 2012 Experience Study, the Board made a policy decision to re-amortize all existing Tier 1/Tier 2 unfunded actuarial liability (UAL) at the December 31, 2013 rate-setting actuarial valuation. Since then, Tier 1/Tier 2 gains and losses between subsequent rate-setting valuations have been amortized as a level percentage of payroll over a closed 20-year period from the rate-setting valuation in which they were first recognized.

Senate Bill 1049 was signed into law in June 2019 and required a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22-year period at the December 31, 2019 rate-setting actuarial valuation which set actuarially determined contribution rates for the 2021-2023 biennium. The remaining amortization period of this closed amortization base will continue to decrease, and we recommend the Board maintain the 20-year closed amortization period for new Tier 1/Tier 2 gains or losses in future valuations.

RHIA & RHIPA Actuarial Surplus Amortization

Due to a combination of the shorter 10-year UAL amortization period for the RHIA and RHIPA programs and recent experience, the funded status for both programs has increased significantly in recent years. At December 31, 2019 RHIA was 159% funded and RHIPA was 87% funded. For RHIA, recent policy has been

to adopt a 0.00% of payroll RHIA UAL Rate when the plan is over 100% funded and to still require a Tier 1/Tier 2 contribution rate equal to the program's full RHIA Normal Cost Rate.

RHIA and RHIPA benefits are only available to now-closed groups, since only Tier 1/Tier 2 members are eligible for the programs (RHIPA is further restricted to state employees). As a result, continuing to contribute the full Normal Cost Rate when the program is in an actuarial surplus position may not be necessary or advisable. We recommend that when either RHIA or RHIPA is in an actuarial surplus position that the actuarial surplus for that program is amortized over Tier 1/Tier 2 payroll using a rolling 20-year amortization basis. The resulting negative UAL Rate would be allowed to partially or fully offset the Normal Cost Rate of the program, but not below a combined contribution rate of 0.0%. If the program subsequently were to fall below 100% funded, the newly arising UAL would then be amortized over combined Tier 1/Tier 2 and OPSRP payroll following the existing 10-year closed, layered amortization policy for RHIA and RHIPA.

Side Accounts and Transition Liabilities/Surpluses

Prior to the 2010 Experience Study, side accounts and transition liabilities/surpluses were amortized over a fixed date period ending on December 31, 2027. To better match the amortization periods for new side accounts and new transition liabilities with the amortization of the Tier 1/Tier 2 UAL, and to avoid issues related to a shortening amortization period, as part of the 2010 Experience Study the PERS Board adopted the following amortization procedures which are not tied to a fixed date:

- In general, newly established side accounts have been amortized over a 20-year period aligned with the new Tier 1/Tier 2 UAL base from the most recent rate-setting valuation. For example, a side account created in July 2023 would have an amortization period ending on December 31, 2041, which would align with the 20-year Tier 1 /Tier 2 UAL base created in the December 31, 2021 rate-setting valuation that will establish 2023-2025 employer contribution rates. Employers who make lump sum payments in accordance with the rules under OAR 459-009-0086(9) may select a shorter amortization period of either 6, 10, or 16 years since the most recent rate-setting valuation.
- New transition liabilities/surpluses are amortized over the 18-year period beginning when the employer joins the SLGRP. This amortization period aligns with the last Tier 1/Tier 2 amortization base established as an independent employer.

We recommend no additional changes to the amortization method or periods of side accounts and new transition liabilities/surpluses.

Asset Valuation Method

Effective December 31, 2004, the Board adopted market value as the actuarial value of assets, replacing the four-year smoothing method previously used to determine the actuarial asset value, which is used for shortfall (UAL) calculations. Although asset smoothing is a common method for smoothing contribution rates in public sector plans, the smoothed asset value does not provide a transparent measure of the plan's funded status and UAL. Market value provides more transparency to members and other interested parties regarding the funded status of the plan. Instead of smoothing assets, a rate collar method (described below) is used to smooth contribution rates and systematically spread large rate increases across several biennia.

We recommend no change to the asset valuation method.

Excluded Reserves

Statute provides that the Board may establish Contingency and Capital Preservation reserve accounts to mitigate gains and losses of invested capital and other contingencies, including certain legal expenses or judgments. In addition, statute requires the establishment and maintenance of a Rate Guarantee or Deficit reserve to fund earnings crediting to Tier 1 member regular accounts when actual earnings are below the investment return assumption selected by the Board.

The Contingency and Capital Preservation reserves are excluded from the valuation assets used for employer rate-setting calculations. We recommend no change to the treatment of the Contingency and Capital Preservation reserves.

The Rate Guarantee Reserve (RGR) was positive as of December 31, 2019 but can become negative (in deficit status) if, over time, the required crediting on Tier 1 member accounts exceeds the investment earnings actually achieved on those accounts. The RGR was negative from the December 31, 2008 valuation to the December 31, 2012 valuation. All else being equal, excluding a negative reserve increases the level of valuation assets used in employer rate-setting calculations. This occurs because subtracting a negative amount is mathematically equivalent to adding a positive amount of the same magnitude. If the negative reserve was larger in absolute value than the sum of the other reserves, this approach would lead to the actuarial value of assets used in shortfall (UAL) calculations being larger than the market value of assets.

As part of the 2010 Experience Study, the Board decided to only exclude the RGR from assets when it is in positive surplus position, and not to subtract a negative RGR (which would increase the actuarial value of assets) when it is in deficit status. We recommend this treatment of the RGR continue.

Rate Collar Method

Effective December 31, 2004, a rate collar method was adopted that limits biennium to biennium changes in contribution rates to be within a specified “collar” range. Average system contribution rates are at a higher level currently than when the rate collar was originally designed. Due to the nature of the existing rate collar methodology, this higher starting point leads to a larger allowable change in rates each biennium. The PERS Board reviewed the components of the rate collar methodology over the course of several Board meetings in 2020 and 2021 to determine whether any changes to the parameters of the rate collar would be desirable. As a result of that process, we recommend changing the rate collar as follows:

Existing Rate Collar Method: The existing rate collar method restricts the change in an employer’s “base” total Tier 1/Tier 2 or OPSRP contribution rate (i.e., the rate before contemplation of side account rate offsets or rate adjustments for any pre-pooled obligations) to the greater of 20% of the current rate or 3% of payroll. If the funded status excluding side accounts is less than 60% or greater than 140%, the size of the rate collar is doubled. If the funded percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Proposed Rate Collar Method: The rate collar will restrict the change in the Unfunded Actuarial Liability (UAL) Rate component, rather than the sum of the Normal Cost Rate and UAL Rate components. Other parameters of the rate collar are as follows:

- **Collar width:**
 - Tier 1/Tier 2 State & Local Government Rate Pool (SLGRP) and Tier 1/Tier 2 School District Rate Pool: 3% of payroll

- OPSRP: 1% of payroll (the OPSRP UAL Rate is pooled at a state-wide level)
- Tier 1/Tier 2 UAL Rates for independent employers: greater of 4% of payroll or one-third of the difference between the employer's collared and uncollared UAL Rate at the last rate-setting valuation. In addition, the UAL Rate would not be allowed to be less than 0.00% of payroll for any independent employer with a funded status (excluding side accounts) less than 100%.
- **Decrease restrictions:** the UAL Rate for any rate pool will not be allowed to decrease if the pool's funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase in to the full collar width from 87% funded to 90% funded.

The rate collar is applied for each rate pool (or independent employer) prior to any adjustments to the employer contribution rate for side accounts, transition liabilities, or pre-SLGRP pooled liabilities. The rate collar only applies to employer contribution rates for pension benefits. A graphical representation of the rate collar is shown in our June and July presentations to the PERS Board. Rates attributable to RHIA and RHIPA (retiree medical) programs are not subject to the collar.

Liability Allocation for Actives with Multiple Employers

Over the course of a member's working career, a member may work for more than one employer covered under the Tier 1/Tier 2 program. Since employer Tier 1/Tier 2 contribution rates are developed on an individual employer basis, while also considering any rate pooling structures, the member's liability should be allocated between the member's various Tier 1/Tier 2 employers. If all of the member's employers participate in the same rate pool, the allocation has no effect on rates, but if the employers in question are in different rate pools, or some are independent, the method to allocate liability among employers can have an impact on the employers' calculated contribution rates.

When a member retires, PERS allocates the cost of the retirement benefit between the employers the member worked for based on the calculation approach that produces the member's retirement benefit. If the member's benefit is calculated under the Money Match approach, the cost is allocated in proportion to the member's account balance attributable to each employer. If the member's benefit is calculated under the percent of final average pay Full Formula approach, the cost is allocated in proportion to the service attributable to each employer.

In the period prior to the 2003 system reforms and shortly thereafter, the vast majority of retirement benefits were calculated under the Money Match approach, so the member liability in valuations prior to December 31, 2006 had been allocated in proportion to the member's account balance attributable to each employer. With no new member contributions to Tier 1/Tier 2, however, this procedure meant no liability was allocated to employers for service after December 31, 2003 in the valuation. As Money Match approach calculations became less predominant and retirements under the Full Formula approach become more prevalent, a change in the procedure to allocate liability among employers was warranted.

Effective with the December 31, 2006 valuation, a change was made to allocate a member's actuarial accrued liability among employers based on a weighted average of the Money Match methodology, which utilizes member account balance, and the Full Formula methodology, which utilizes service. The methodologies were weighted according to the percentage of the system-wide actuarial accrued liability for new retirements projected to be attributable to the Money Match and Full Formula approaches, respectively, as of the next rate-setting valuation. For the December 31, 2018 and December 31, 2019 valuations, the Money Match method was weighted 10% for general service members and 0% for police & fire members.

The total actuarial liability for Tier 1/Tier 2 active members estimated to be attributable to the Money Match approach as of December 31, 2020 is 9% for general service members and less than 1% for police & fire members. This continues the decreasing trend of Money Match benefits seen in prior Experience Studies.

We recommend the Money Match approach continue to be weighted 10% for general service members. This weighting will continue to be reviewed with each experience study and updated as necessary. For police & fire members we recommend the allocation continue to be based entirely on the Full Formula approach, an assumption first adopted in the 2014 Experience Study after the Money Match portion of future police & fire retirements fell below 5%.

As in prior valuations, the member's normal cost will continue to be assigned fully to their current employer.

Offset for Member Redirect Contributions

Senate Bill 1049 from the 2019 legislative session provided that a portion of the 6% of pay member contribution would be redirected from the Individual Account Program (IAP) to the Employee Pension Stability Account (EPSA) beginning July 1, 2020. The EPSA amounts will be used to help fund Tier 1/Tier 2 and OPSRP defined benefits. Absent modification to governing law, the redirect to EPSA will remain in effect until the system-wide funded status including side accounts in a rate-setting actuarial valuation is 90% or greater.

The member redirect only applies to members whose pay exceeds a specified monthly salary threshold. This threshold was originally set at \$2,500 per month (\$30,000 per year for a 12-month employee) for 2020, increased for inflation in future years. House Bill 2906 from the 2021 legislative session subsequently increased this to \$3,333 per month (\$40,000 per year for a 12-month employee) effective in 2022.

For members with pay above the monthly threshold, the amount redirected to EPSA is as follows:

- Tier 1/Tier 2: 2.50% of pay
- OPSRP: 0.75% of pay

Beginning with the 2021-2023 biennium rates which were set in 2020, the PERS Board has adopted employer contribution rates that are based on a total actuarially calculated contribution rate along with an assumed offset for the average level of member redirect contribution for each tier. For the 2021-2023 biennium, the projected system-average member redirect offset was 2.45% of pay for Tier 1/Tier 2 and 0.70% of pay for OPSRP. Those projected offsets were based on the \$2,500 per month threshold in the 2019 legislation. The 0.05% of pay difference between the redirect amount for an individual and the assumed offset was due to the amount of pay expected to fall below the redirect threshold.

Based on our updated analysis reflecting individual member pay from the December 31, 2019 actuarial valuation and the revised pay threshold from House Bill 2906, we recommend the following assumed member redirect offset amounts for the 2023-2025 biennium:

- Tier 1/Tier 2: 2.40% of pay
- OPSRP: 0.65% of pay

Other Considerations Related to Methods

In 2019, the Oregon Secretary of State engaged a third-party firm to prepare an actuarial audit. In a written response dated October 8, 2019, the PERS Director noted certain aspects of the recommendations and considerations from that audit which would be reflected in this Experience Study. For the most part, any such items are incorporated directly into the relevant sections of this report. However, there are a few points relevant to actuarial methods not discussed elsewhere, which are addressed below:

- The audit recommended considering amortizing UAL as a level annual dollar amount, rather than as a level percent of projected pay. While annual level dollar amortization amounts are actuarially determinable, our understanding is that practice would not be feasible for Oregon PERS since all PERS' administrative systems are designed for contributions assessed as a percent of pay. In addition, since all UAL Rate contributions are paid on the combined Tier 1/Tier 2 and OPSRP payrolls, the payroll base underlying the calculated amortization has consistently grown in the past and is reasonably expected to continue to increase in future years. We thus recommend Oregon PERS maintain the level percent of pay amortization approach, which is the amortization approach used by almost all public systems.
- The audit discussed the possibility of applying an adjustment to contribution rates for the 18-month delay between the rate-setting valuation date at which new contribution rates are calculated and the July 1 date on which rates first take effect. When contribution rates increase, such an adjustment would add a small additional rate increase to account for the fact the new higher contribution rate did not take effect immediately at the valuation date. When contribution rates decrease, a similar dynamic would lead to an additional rate decrease from the adjustment. Any delay adjustments would not be expected to have a material effect in total if System experience has gains and losses that approximately offset over time.

While the practice of adjusting for a delay period has intuitive appeal, previous experience for Oregon PERS led to the elimination of such adjustment in the past. Given the complexities of a system with several hundred employers receiving individually determined contribution rates that reflect various combinations of pooling and individual employer experience, a delay adjustment would not be one simple calculation for the system. Our understanding is the prior experience with such an approach led to persistent differences in contribution rate components paid by employers in the same pool, difficulty for stakeholders in reconciling rate changes from biennium to biennium, and increased difficulty for employers to understand how their rates were determined. Based on that understanding, we do not currently recommend adopting a delay adjustment methodology as part of the rate calculation policy.

- The audit suggested adopting explicit assumptions for potential UAL losses due to liability increases from future data corrections and for liability arising from future new entrants in OPSRP. A large share of the data correction loss in the period reviewed by the audit was driven by resolution of a one-off issue. We do not have reason to expect persistent, predictable UAL losses from data corrections in the future. Similarly, the discussion in the audit report which led to the recommendation of an OPSRP new entrant UAL loss assumption was tied to a reconciliation exhibit that identified the **only** the liability effects of the year's OPSRP new entrants. Both Normal Cost Rate and UAL Rate contributions are made to system assets for each year's OPSRP new entrants. Thus, while future OPSRP new entrants will generate new liability in their year of entry they are **not** expected to generate the type of UAL losses that were suggested in the actuarial audit due to the addition to system assets from Normal Cost and UAL Rate contributions on payroll of those members. As has been done in the past, we will continue to monitor experience related to both items in our annual liability reconciliations. However, for the reasons discussed above we do not recommend adding an explicit anticipated UAL loss assumption for either item.

3. Economic Assumptions

Overview

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance on selecting economic assumptions used in measuring obligations under defined benefit pension plans. ASOP No. 27 suggests that economic assumptions be developed using the actuary’s professional judgment, taking into consideration past experience and the actuary’s expectations regarding the future. The process for selecting economic assumptions involves:

- Identifying components of each assumption and evaluating relevant data
- Considering factors specific to the measurement along with other general factors
- Selecting a reasonable assumption

Under ASOP No. 27, an assumption is considered reasonable if:

- It is appropriate for the purpose of the measurement,
- It reflects the actuary’s professional judgment,
- It takes into account relevant historical and current economic data,
- It reflects the actuary’s estimate of future experience, the actuary’s observation of estimates inherent in market data, or a combination thereof, and
- It has no significant bias, except when provisions for adverse deviation are included and disclosed.

A summary of the economic assumptions used for the December 31, 2019 actuarial valuation and those recommended for the December 31, 2020 and 2021 actuarial valuations is shown below:

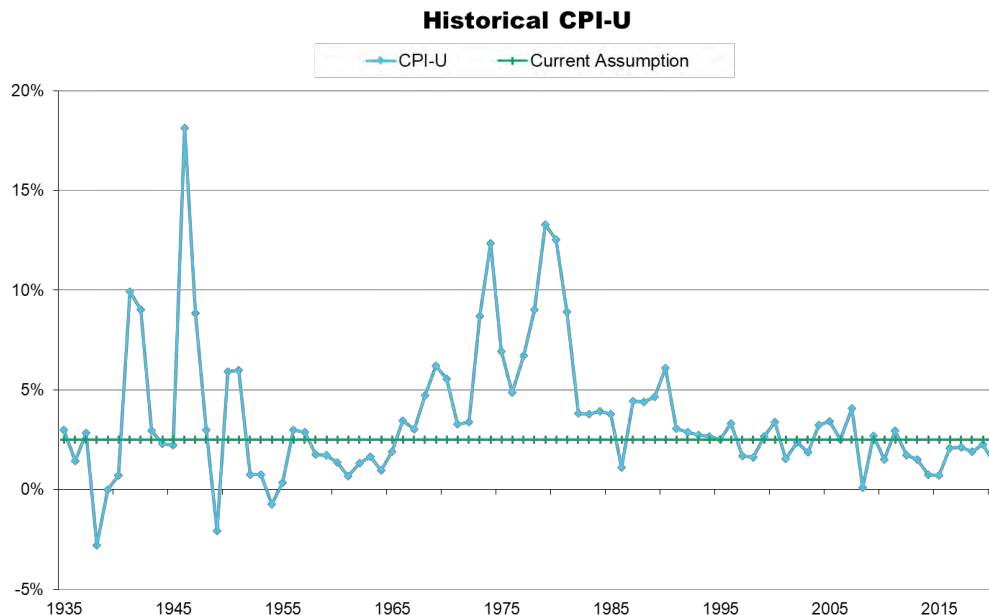
Assumption	December 31, 2019 Valuation	December 31, 2020 and 2021 Valuations
Inflation (other than healthcare)	2.50%	2.40% or lower
Real wage growth	1.00%	No Change
System payroll growth	3.50%	3.40% or lower
Regular investment return	7.20%	We think it is necessary to lower the assumption at least 0.20%. We recommend the Board consider reducing the assumption further to more closely reflect current outlooks. The Board will select the assumption at its July 23, 2021 meeting
Variable account investment return	Same as regular investment return	Same as regular investment return
Tier 1/Tier 2 administrative expenses	\$32.5 million/year	\$59 million/year combined Tier 1/Tier 2 and OPSRP assumption
OPSRP administrative expenses	\$8.0 million/year	

Assumption	December 31, 2019 Valuation	December 31, 2020 and 2021 Valuations
RHIPA health cost trend rates		
▪ 2021 cost trend rate	5.20%	5.90%
▪ Ultimate cost trend rate	4.10%	3.90%
▪ Year reaching ultimate rate	2094	2074

The recommended assumptions shown above, in our opinion, were selected in a manner consistent with the requirements of ASOP No. 27. Each of the above assumptions is described in detail below and on the following pages.

Inflation

The assumed inflation rate is a basis for all other economic assumptions. It affects assumptions including investment return, system payroll growth, and the RHIPA health cost trend rate.



In selecting an appropriate inflation assumption, we consider both historical data and the breakeven inflation rates implied by recent yields of long-term Treasury Inflation Protection Securities (TIPS) and Treasury bonds. The chart above shows the historical annual inflation rate for the years ending December 31 from 1935 through 2020 as reported by the Bureau of Labor Statistics. The mean and median annual rates over this period are **3.56** percent and **2.88** percent respectively.

Historical inflation rates vary significantly from period to period and may not be an indication of future inflation rates. With the development of a TIPS market, we can calculate an estimated breakeven inflation rate by comparing yields on regular Treasury securities to the yields on TIPS. The table below shows yields as of December 31, 2020 and April 30, 2021, for 10-year and 30-year Treasury bonds and TIPS.

	As of 12/31/2020		As of 4/30/2021	
	10-Year	30-Year	10-Year	30-Year
Treasury Yield	0.93%	1.65%	1.65%	2.30%
TIPS Yield	(1.06%)	(0.37%)	(0.76%)	0.02%
Breakeven Inflation	1.99%	2.02%	2.41%	2.28%

We also considered three other inflation measures in our analysis: Social Security’s intermediate inflation projection average of 2.39 percent over the period 2020-2030 (with an ultimate rate of **2.40** percent), the Medicare Trustees’ intermediate assumption of 2.40 percent inflation for ten years and **2.40** percent thereafter, and the Congressional Budget Office’s projection of CPI of an average of 2.22 percent inflation over the period 2020-2030 (with an ultimate rate of **2.40** percent). These measures were taken from, respectively, the 2020 OASDI Trustees Report, the 2020 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, and *Additional Information about the Economic Outlook: 2021 to 2031* published by the CBO in February 2021.

Based on the information shown above, while the current assumption of 2.50% may still be reasonable, we recommend lowering the assumption to **2.40 percent or lower** to better align with current consensus expectations for long-term average future inflation.

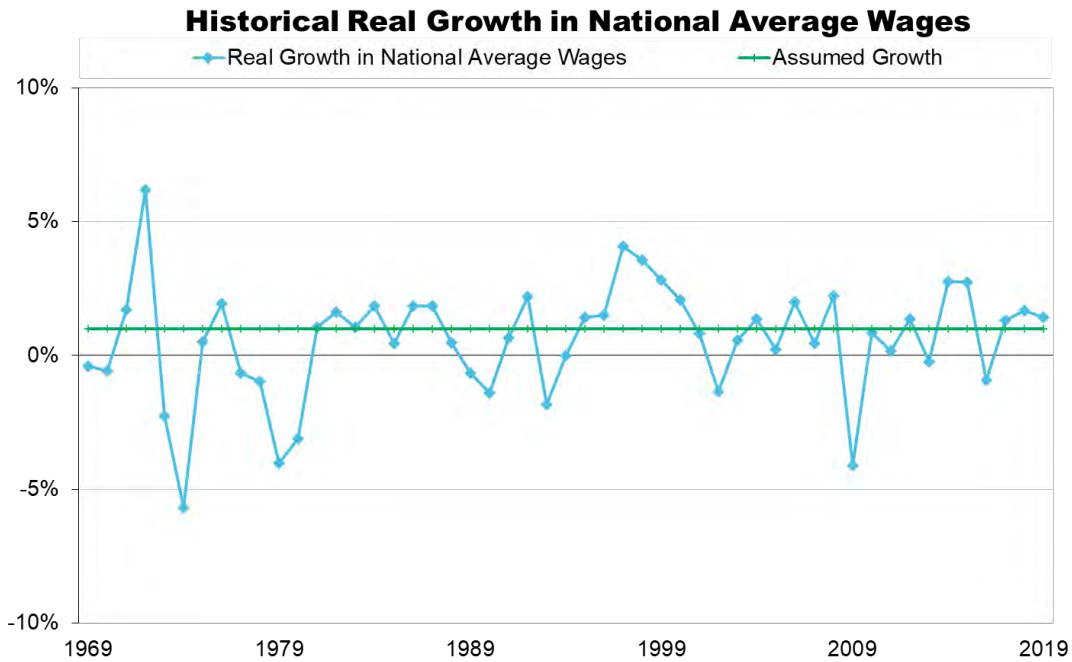
Real Wage Growth

The assumed individual salary increase assumption for each member is the sum of three components:

- Inflation,
- Real wage growth, and
- Merit and longevity wage growth.

Real wage growth represents the increase in wages above inflation for an entire population due to improvements in productivity and competitive pressures. Merit and longevity wage growth, in contrast, represent the increases in wages for an individual due to factors such as performance, promotion, or seniority.

The chart below shows the real growth in national average wages over the past fifty years based on data compiled by the Social Security Administration.



While the change in any one year has been volatile, the change over longer periods of time is more stable as shown in the chart below, which depicts the 10, 20, and 30 year trailing average reflecting data since 1981.



While the 10-year trailing average is still somewhat volatile, the 20- and 30-year averages have generally remained between 0.80% and 1.20% during the period shown. The table below shows the trailing average over various periods as of December 31, 2019, which was the most recently available data at the time of this report's development.

Length of Period Ending December 31, 2019	Average Real Growth in National Average Wages
10 years	1.11%
20 years	0.76%
30 years	0.93%
40 years	0.86%
50 years	0.60%

We also considered the Social Security Administration’s current long-term intermediate wage growth assumption of 1.14 percent in our analysis.

Based on the combination of historical data and Social Security’s outlook for future experience, we consider the current assumption of 1.00 percent to continue to be reasonable and appropriate. We recommend no change to the assumption.

System Payroll Growth

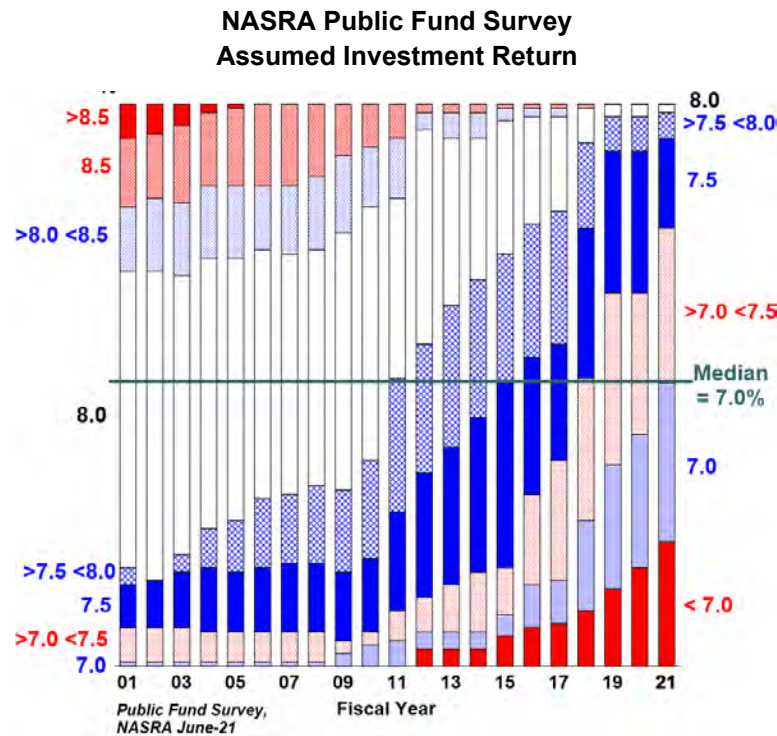
Real wage growth combined with inflation represents the expected growth in total system payroll for a stable active employee population. Changes in payroll due to an increase or decline in the headcount of the active employee population are not captured by this assumption. The system payroll growth assumption is used to develop the annual amount necessary to amortize the unfunded actuarial liability as a level percentage of projected future system payroll.

Since we are recommending the inflation assumption be reduced to 2.40% or lower and the real wage growth assumption remain at 1.00%, we recommend that the payroll growth assumption be lowered to 3.40% or lower.

Investment Return

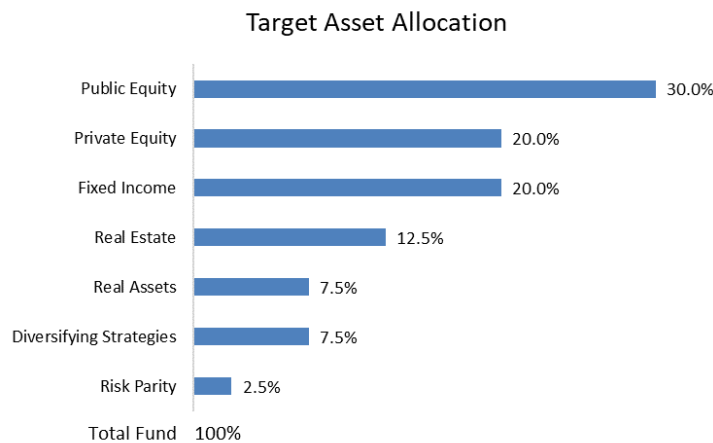
The assumed rate of investment return is used to calculate the present value as of the actuarial valuation date of future projected system benefit payments, to project interest credits applied to member accounts until retirement, to convert member accounts to a monthly retirement allowance under the Money Match formula, and to convert the retirement allowance to optional joint & survivor benefits. As such, it is the most important assumption used in valuing the plan’s liabilities and developing contribution rates. The assumption is intended to reflect the long-term expected future return on the portfolio of assets that fund the benefits.

To provide some perspective on this assumption, the chart below shows the assumptions used by the 131 largest US public sector systems in a regularly updated survey published by the National Association of State Retirement Administrators (NASRA). As can be seen from the chart (updated by NASRA in June 2021), the Oregon PERS assumption of 7.20% used in the prior valuation is currently higher than the median assumption for large US public sector systems, which is 7.00%. The arithmetic average (mean) of the return assumptions in the chart is 7.13%. Given the consensus view among investment professionals regarding both low long-term expected returns for fixed income investments (relative to historical averages) and low expected levels of average future inflation (also relative to historical averages), we believe that this downward trend in the survey will continue in the future as systems periodically revisit their investment return assumptions.



Regular Accounts

Based on the Oregon Investment Council’s (OIC) Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund, including revisions adopted at the OIC meeting on June 2, 2021, we understand the current target asset allocation is as follows:



To develop an analytical basis for the Board’s selection of the investment return assumption, we use long-term real return outlooks developed by Milliman’s capital market outlook team for each of the asset classes in which the plan is invested based on the OIC’s long-term target asset allocation, and combined those real return outlooks with a 2.40% inflation assumption to develop nominal expected returns. Since the OIC uses broader asset classes than those for which Milliman’s investment professionals develop long-term return assumptions, we received assistance from Meketa, OIC’s primary consultant, to map each OIC asset class to the classes shown below. Each asset class assumption is based on a consistent set of underlying assumptions, including the inflation assumption. These assumptions are not based on average historical

returns, but instead are based on a forward-looking capital market outlook economic model. Based on the target allocation and investment return assumptions for each of the asset classes, our model's 50th percentile output is developed as follows:

Asset Class	Target Allocation	Annual Arithmetic Mean	20-Year Annualized Geometric Mean	Annual Standard Deviation
Global Equity	30.62%	7.11%	5.85%	17.05%
Private Equity	25.50%	11.35%	7.71%	30.00%
Core Fixed Income	23.75%	2.80%	2.73%	3.85%
Real Estate	12.25%	6.29%	5.66%	12.00%
Master Limited Partnerships	0.75%	7.65%	5.71%	21.30%
Infrastructure	1.50%	7.24%	6.26%	15.00%
Commodities	0.63%	4.68%	3.10%	18.85%
Hedge Fund of Funds - Multistrategy	1.25%	5.42%	5.11%	8.45%
Hedge Fund Equity-Hedge	0.63%	5.85%	5.31%	11.05%
Hedge Fund – Macro	5.62%	5.33%	5.06%	7.90%
US Cash	(2.50%)*	1.77%	1.76%	1.20%
Portfolio – Net of Investment Expenses	100.00%	7.06%	6.31%**	13.08%

*Negative allocation to cash represents levered exposure from allocation to Risk Parity strategy.

**The Milliman model's 20-year annualized geometric median is 6.27%.

Based on capital market outlook for real returns developed by credentialed investment professionals at Milliman and assumed inflation of 2.40%.

We compared the expected return to the range of returns developed using a mean-variance model and the capital market assumptions developed by Milliman to a similar analysis presented by at the June OIC meeting that we understood was developed collaboratively by Oregon State Treasury staff and their two investment consultants, Meketa and Aon. These capital market outlooks were developed based on year-end 2020 market conditions. In addition, we modeled the returns projected for the OIC's asset allocation using the 10-year capital market outlook from the 2020 Survey of Capital Market Assumptions published by Horizon Actuarial Services, LLC in July 2020. Returns shown below are net of passive investment expenses. In our modeling, we assumed that expenses incurred for active management are offset by additional returns gained from active management.

The table below compares the median of expected annualized returns calculated on a geometric basis for regular accounts based on Milliman's analysis detailed above, the OIC capital market outlook, and the consensus outlook from the Horizon survey.

	OIC	Horizon	Milliman
Median annualized geometric return	6.6%	6.80%	6.27%
Assumed inflation	2.1%	1.98%	2.40%
Timeframe modeled	20 years	10 years	20 years

It is common practice among public pension systems for the investment return assumption to be a multiple of either a tenth- or quarter-point (i.e., 0.10% or 0.25%). The lack of additional precision in selected assumptions is justified and reasonable due to the inability to have precise knowledge in advance regarding future investment returns. The median annualized return for the 20-year outlook from the OIC (reflecting input from their advisors Meketa and Aon) was 6.6%. The median annualized return for a 20-year time horizon based on Milliman's real return capital market outlook and a 2.4% inflation outlook was 6.27%. Those model outputs are based on the forward-looking return expectations of the investment professionals from those firms, and before any potential active management adjustments. Actual future investment returns are not determined by the assumed rate of return. Selecting an assumed return materially above the 50th percentile implies a materially greater than 50% chance of actual long-term future experience falling short of the selected assumption.

Both the OIC and Milliman models use capital market assumptions developed shortly after the end of 2020 and reflect the significant market gains during the latter part of 2020 in the underlying starting point. Our understanding is the relatively high asset prices and P/E ratios as of December 31, 2020 would work to decrease the forward-looking expected real returns in many asset classes, based upon the analytical framework of both models. Note that the Horizon survey results were based on expectations in the first half of 2020. Since equity markets subsequently increased significantly in late 2020, we expect the next annual update of the Horizon survey will produce lower expected future returns.

Based on the capital market outlooks reviewed, we believe the current investment return assumption should be lowered at least 0.20%. In addition, we recommend the PERS Board consider reducing the assumption further to more closely reflect the outlook of the OIC and its retained investment advisors.

Variable Account

The variable account is invested entirely in global equity. As a result, the annual expected arithmetic return is significantly higher than for the regular account, but so is the standard deviation. The result is a long-term compounded geometric annual return similar to the regular account, based on Milliman's capital market outlook. Prior to the December 31, 2012 valuation, the compound geometric variable account return was assumed to be higher than the regular account return. Beginning with that valuation, the variable account return assumption was set equal to the regular account return assumption, as the relationship between the various asset classes no longer warranted such a distinction in our opinion. We recommend continuing to set the variable account return assumption equal to the regular account return assumption.

Administrative Expenses

In accordance with GASB Statements No. 67 and No. 68, the long-term investment return assumption is considered to be gross of administrative expenses. In order to account for expected administrative expenses, in the past we have developed separate assumptions for Tier 1/Tier 2 and OPSRP with specific dollar amounts based on recent and expected future experience. The assumed administrative expenses for each program were added to the normal cost in the calculation of contribution rates in order to fund administrative expenses each year as they occur. With this study, we recommend modifying this approach to develop a total system-wide dollar amount (Tier 1/Tier 2 and OPSRP) and then allocate the assumed administrative expense to normal cost for each tier in proportion to payroll.

The Tier 1/Tier 2 assumed administrative expenses in the December 31, 2019 valuation were \$32.5 million per year and the OPSRP assumed administrative expenses were \$8.0 million, for a total combined assumption of \$40.5 million. A summary of recent actual administrative expenses for the system is shown below.

System-Wide (Tier 1/Tier 2 + OPSRP) Pension Administrative Expense			
Year	Dollar Amount (\$ millions)	Percentage of Beginning of Year Assets	Percentage of Projected Payroll
2016	\$41.7	0.08%	0.44%
2017	\$41.0	0.07%	0.42%
2018	\$36.7	0.06%	0.36%
2019	\$44.5	0.07%	0.41%
2020	\$56.5	0.09%	0.49%

Based on discussion with PERS staff, we understand the increase in 2019 and 2020 was driven largely by work required for the implementation of Senate Bill 1049, and that this higher level of expenses is expected to persist for at least the near future. As a result, we recommend setting the assumed system-wide administrative expenses for the December 31, 2020 and December 31, 2021 actuarial valuations at \$59 million. This amount reflects recent historical experience with an expectation of inflation-related growth for the next two years.

RHIPA Subsidy Cost Trend Rates

Trend rates are used to estimate increases in the employer cost of the RHIPA subsidy. Based on analysis performed by Milliman’s healthcare actuaries, we recommend the following change to the healthcare cost trend assumption. The healthcare cost trends are based on the Society of Actuaries (SOA) periodically updated report on long-term medical trends. That report includes detailed research performed by a committee of economists and actuaries (including a Milliman representative) utilizing the “Getzen Model” named after the professor who developed the model. We believe that the research and the model are fundamentally and technically sound and advance the body of knowledge available to actuaries to project long-term medical trends more accurately. Milliman uses the Getzen Model as the foundation for the trend that we recommend to our clients for OPEB valuations. The model produces long-range trend assumptions built on long-term relationships between certain key economic factors.

The trend rates developed in the previous study reflected consideration of the excise tax scheduled to be introduced by the Affordable Care Act. The Further Consolidated Appropriations Act passed in December 2019 repealed the excise tax, and as a result no adjustment is required for the proposed trend assumption.

Given the substantial uncertainty regarding the impact of COVID-19 on plan costs, including whether the pandemic will increase or decrease costs during the term of our projections, we have chosen not to make an adjustment in the expected plan costs or in the trend assumptions. It is possible that the COVID-19 pandemic could have a material impact on the projected costs.

Note that the following chart shows sample rates. A full chart can be found in the appendices.

Year	December 31, 2018 and 2019 Valuations	December 31, 2020 and 2021 Valuations
2019	7.1%	N/A
2020	5.8%	N/A
2021	5.2%	5.9%
2022	5.0%	5.5%
2023	5.0%	5.1%
2024	5.0%	5.0%
2025	5.1%	4.9%
2026	5.0%	4.9%
2027	5.0%	4.8%
2028	5.0%	4.7%
2029	5.0%	4.7%
2030	5.4%	4.7%
2035	5.9%	4.7%
2040	5.7%	4.8%
2045	5.6%	4.8%
2050	5.4%	4.8%
2060	5.1%	4.7%
2070	4.5%	4.2%
2080	4.2%	3.9%
2090	4.2%	3.9%
2094+	4.1%	3.9%

4. Demographic Assumptions

Overview

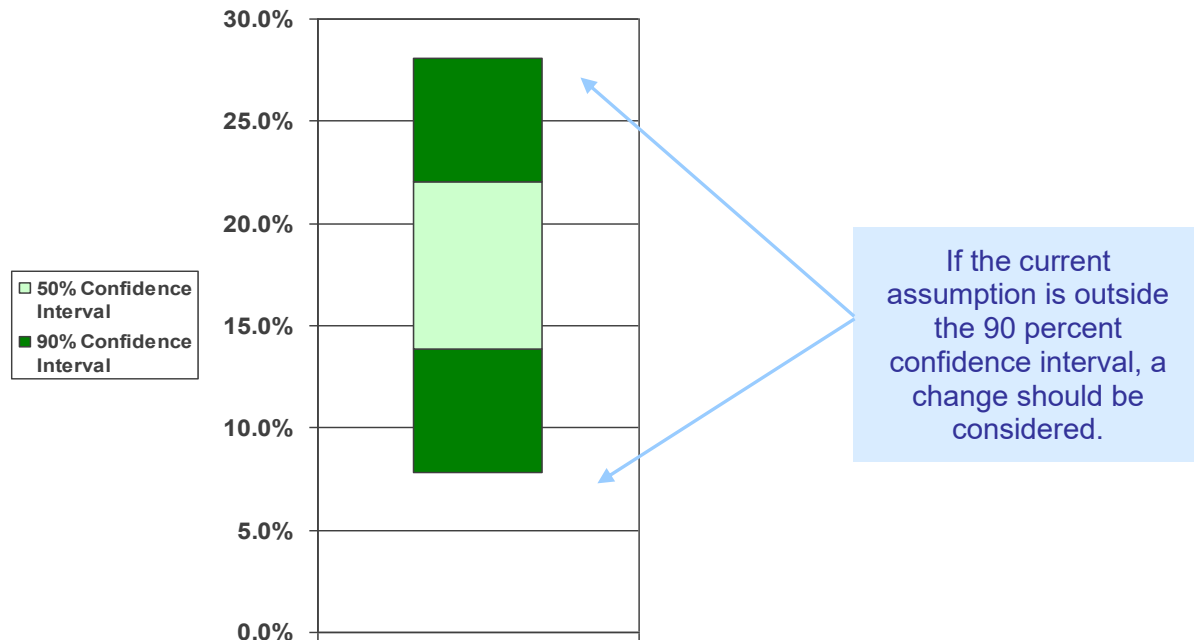
Actuarial Standard of Practice (ASOP) No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, provides guidance on selecting demographic assumptions used in measuring obligations under defined benefit pension plans. The general process for recommending demographic assumptions as defined in ASOP No. 35 is as follows:

- Identify the types of assumptions;
- Consider the relevant assumption universe;
- Consider the assumption format;
- Select the specific assumptions; and
- Evaluate the reasonableness of the selected assumption.

The purpose of the demographic experience study is to compare actual experience against expected experience based on the assumptions used in the most recent actuarial valuation. The observation period used in this study is January 1, 2017 through December 31, 2020, and the current assumptions are those adopted by the Board for the December 31, 2019 actuarial valuation. If the actual experience differs significantly from the overall expected experience, or if the pattern of actual experience by age, sex, or duration does not follow the expected pattern, new assumptions are considered.

Confidence intervals have been used to measure observed experience against current assumptions to determine the reasonableness of the assumption. The floating bars represent the 50 percent and 90 percent confidence intervals around the observed experience. The 90 percent confidence interval represents the range around the observed rate that could be expected to contain the true rate during the period of study with 90 percent probability. The size of the confidence interval depends on the number of observations and the likelihood of occurrence. If an assumption is outside the 90 percent confidence interval and there is no other information to explain the observed experience, a change in assumption should be considered. A change may also be considered when the observed experience is within the 90 percent confidence interval, depending on the specific situation. A sample graph with confidence intervals is shown below:

Overview (continued)



The demographic assumptions used for the December 31, 2019 actuarial valuation and the recommended assumptions for the December 31, 2020 and December 31, 2021 actuarial valuations are shown in detail in the following sections.

A summary of the changes recommended to the Board are as follows:

- Adjust the base mortality table assumption for School District males and make a routine update to the mortality improvement scale, which is based on 60-year unisex average Social Security experience.
- Adjust retirement rates for certain member categories and service bands to more closely align with recent and expected future experience and increase the age of 100% likelihood of assumed retirement by five years for all groups; reduce the percentage of future retirees assumed to elect a partial lump sum; increase the percentage of members assumed to purchase credited service at retirement.
- Increase the merit component of the individual member salary increase assumption for all member categories based on observations of the last eight years of experience. The individual member salary increase assumption consists of the sum of inflation, real wage growth, and merit components, with the latter varying by member.
- Update pre-retirement termination of employment assumptions for one member category.
- Lower assumed rates of ordinary (non-duty) disability and general service duty disability incidence.
- Increase the Tier 1 unused vacation cash out assumption for three member categories.
- Adjust the Tier 1/Tier 2 unused sick leave assumption for all member categories to reflect recently observed experience and to more heavily weight experience from higher liability retirees.
- Decrease the healthy and disabled likelihood of program participation assumption for the RHIA retiree healthcare program.
- Decrease the RHIPA likelihood of program participation assumption for most service bands.

The recommended assumptions, in our opinion, were selected in a manner consistent with the requirements of ASOP No. 35.

Mortality

Mortality rates are used to project the length of time benefits will be paid to current and future retirees and beneficiaries. The selection of a mortality assumption affects plan liabilities because the estimated present value of retiree benefits depends on how long the benefit payments are expected to continue. There are clear differences in the mortality rates among healthy retired members, disabled retired members, and non-retired members. As a result, experience for each of these groups is reviewed independently and each group receives its own mortality assumptions.

For the current study, we reviewed mortality during 2020 separately and observed modestly higher mortality rates than in other years of the study. This 2020 experience may be driven by COVID-19 and not representative of anticipated future mortality experience. As a result, we have excluded 2020 mortality data from the results of our analysis shown below.

A summary of the current assumed mortality rates and recommended changes is shown below:

Assumption	Recommended December 31, 2018 and 2019 Valuations	Recommended December 31, 2020 and 2021 Valuations
Healthy Annuitant Mortality	Pub-2010 Healthy Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Healthy Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
▪ School District male	Teachers, no set back	Blend 80% Teachers and 20% General Employees, no set back
▪ Other General Service male (and male beneficiary)	General Employees, set back 12 months	No change
▪ Police & Fire male	Public Safety, no set back	No change
▪ School District female	Teachers, no set back	No change
▪ Other General Service female (and female beneficiary)	General Employees, no set back	No change
▪ Police & Fire female	Public Safety, set back 12 months	No change
Disabled Retiree Mortality	Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
▪ Police & Fire male	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
▪ Other General Service male	Non-Safety, set forward 24 months	No change
▪ Police & Fire female	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
▪ Other General Service female	Non-Safety, set forward 12 months	No change
Non-Annuitant Mortality	Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
▪ School District male	120% of same table and set back as Healthy Annuitant assumption	125% of same table and set back as Healthy Annuitant assumption
▪ Other General Service male	115% of same table and set back as Healthy Annuitant assumption	No change

Mortality (*continued*)

Assumption	Recommended December 31, 2018 and 2019 Valuations	Recommended December 31, 2020 and 2021 Valuations
▪ Police & Fire male	100% of same table and set back as Healthy Annuitant assumption	No change
▪ School District female	100% of same table and set back as Healthy Annuitant assumption	No change
▪ Other General Service female	125% of same table and set back as Healthy Annuitant assumption	No change
▪ Police & Fire female	100% of same table and set back as Healthy Annuitant assumption	No change

Mortality Improvement Scale

Mortality rates are expected to continue to decrease in the future, and the resulting increased longevity should be anticipated in the actuarial valuation. For Oregon PERS, this is done through the use of a generational mortality assumption, which combines a base mortality table and a separate mortality improvement scale to project the pace of future life expectancy increases. The base mortality table defines the mortality rates assumed at each age in a single specific calendar year, while the mortality improvement scale projects how quickly the mortality rates at each individual age are assumed to improve in future calendar years.

The current mortality improvement scale is based on 60-year unisex average mortality improvement rates by age, calculated using Social Security data through 2015, which was the most recent publicly available data at the time of the prior experience study. Our recommendation is to update the mortality improvement scale based on Social Security data through 2017 (the most recent publicly available data). We believe this meets the “best actuarial information on mortality at the time” standard mandated by ORS 238.607. A full listing of the recommended mortality improvement scale rates is included in the appendix.

Healthy Annuitant Mortality

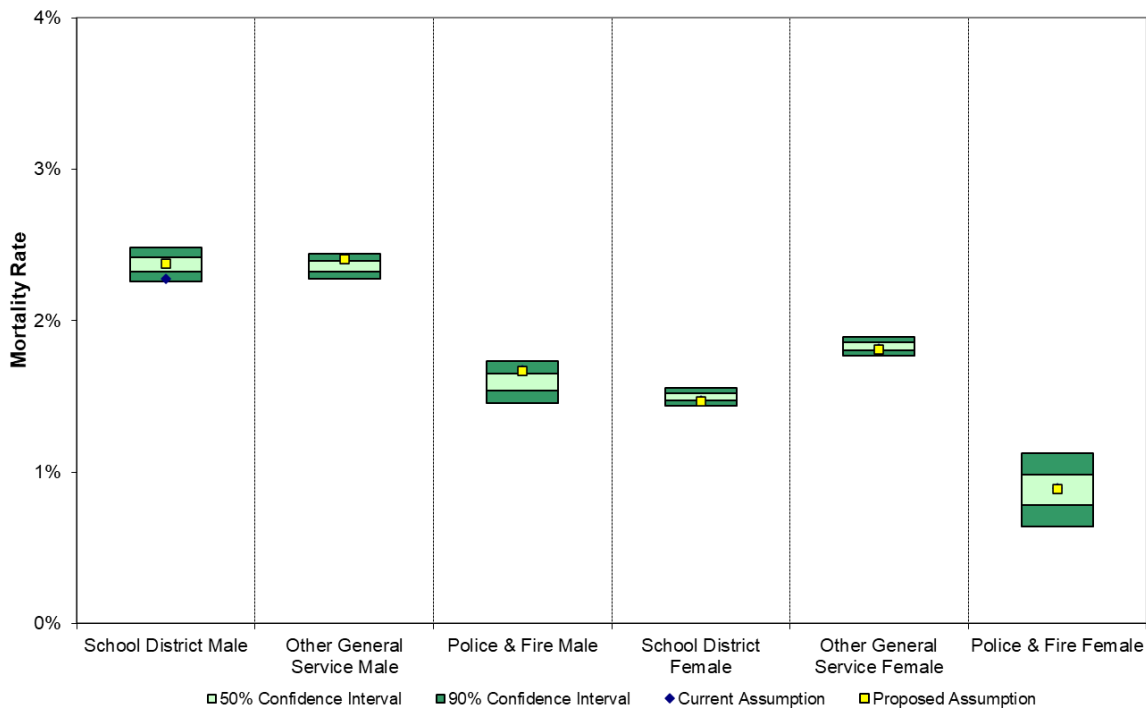
Mortality assumptions for healthy retired members are separated into six groups based on employment category and gender (school district males, school district females, police & fire males, police & fire females, other general service males, other general service females). Beneficiaries were combined with non-school district general service members of the same gender.

To assist in review of the current mortality assumptions’ reasonability, we calculated the ratio of actual deaths to expected deaths (A/E ratio) during the experience study’s data observation period for each of the six groups described above. In the prior study, mortality assumptions were targeted to achieve an A/E ratio of approximately 100 percent on a benefits-weighted basis. In the current study, A/E ratios for most groups remained near 100 percent, though school district males showed a relatively high A/E ratio for the second study in a row. Since the aggregate mortality rate experience for this group has been at the edge of the 90% confidence interval for two consecutive studies, we recommend modifying that group’s base mortality table to reflect a blend of standard national tables for teachers and general employees. For all other groups, the current assumption basis continues to match experience reasonably well and we recommend no changes.

Mortality (continued)

	Benefits-Weighted (\$1,000s of monthly benefits)		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
School District male	163,428	3,877	3,718	104%	3,883	100%
Other General Service male (and male beneficiary)	280,446	6,613	6,769	98%	6,744	98%
Police & Fire male	89,686	1,432	1,501	95%	1,495	96%
School District female	258,003	3,864	3,796	102%	3,782	102%
Other General Service female (and female beneficiary)	264,203	4,835	4,796	101%	4,777	101%
Police & Fire female	11,199	99	100	99%	100	99%

Healthy Retiree Mortality Aggregate Confidence Intervals and Rates



We recommend continued use of the Pub-2010 base mortality tables (published by the Society of Actuaries in January 2019) as the underlying base mortality tables for generational mortality assumptions in the current study. The Pub-2010 mortality tables reflect observed experience from calendar years 2008-2013, with 2010 as the middle of the observation period. The tables are based exclusively upon data gathered from large public sector pension systems (including Oregon PERS) for the first modern study specific to the mortality experience of US public pension plans.

Mortality (*continued*)

In the Pub-2010 study, different gender-distinct base mortality tables were published for three separate job categories: teachers, public safety, and general employees. When selecting a table to match the mortality rates of Oregon PERS, we started from the category table most applicable to the portion of the population under consideration, and then adjusted, if needed, to more closely align with recent Oregon PERS experience. At times we use a “set back” to adjust the mortality rates. A “set back” of 12 months, for example, treats all members as if they were 12 months younger than they really are when applying the mortality table, which results in lower assumed mortality rates for members.

We recommend updating the assumption for school district males to reflect an 80%/20% blend of the relevant base mortality tables for teachers and general employees from the Pub-2010 study. This blend more closely follows recent observed experience for this group than that of the teachers table and is also consistent with the fact that Oregon PERS school district employees include non-teaching staff, while the Pub-2010 teachers base mortality table included only teacher experience in its development.

A summary of the current and recommended healthy retiree mortality assumptions is shown below:

	Recommended December 31, 2018 and 2019 Valuations	Recommended December 31, 2020 and 2021 Valuations
Basic Table	Pub-2010 Healthy <u>Retiree</u>, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Healthy <u>Retiree</u>, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
School District male	Teachers, no set back	Blend 80% Teachers, no set back and 20% General Employees, no set back
Other General Service male (and male beneficiary)	General Employees, set back 12 months	No change
Police & Fire male	Public Safety, no set back	No change
School District female	Teachers, no set back	No change
Other General Service female (and female beneficiary)	General Employees, no set back	No change
Police & Fire female	Public Safety, set back 12 months	No change

Disabled Retiree Mortality

Disabled members are expected to experience higher mortality rates at a given age than non-disabled retired members. As a result, disabled member mortality experience is analyzed separately from that of non-disabled annuitants and beneficiaries. We recommend continued use of the Pub-2010 Disabled Retiree base mortality tables and the 60-year average unisex Social Security mortality improvement scale as the starting point for setting disabled mortality assumptions in the current study. This will maintain a consistent basis for disabled and non-disabled retiree assumptions, as has been the case in prior studies.

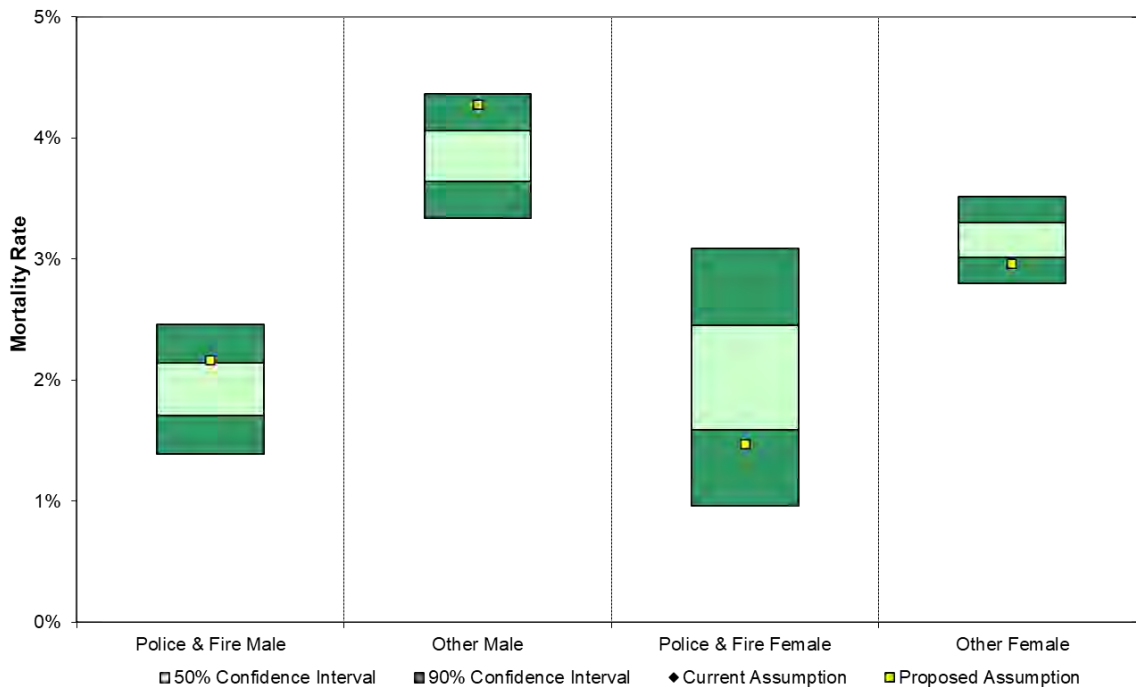
As in the most recent study, we recommend applying adjustments to the underlying Pub-2010 Disabled Retiree mortality tables where needed to more closely match assumptions to recent Oregon PERS experience on a benefits-weighted approach.

Mortality (continued)

	Benefits-Weighted (\$1,000s of monthly benefits)		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
Disabled Police & Fire male	6,181	119	134	89%	134	89%
Disabled General Service male	7,891	304	338	90%	337	90%
Disabled Police & Fire female	1,256	25	19	137%	18	138%
Disabled General Service female	11,362	359	338	106%	336	107%

Prior to the publication of the Pub-2010 tables, disabled police & fire members were not rated separately due to the relatively small amount of experience for such members. However, the Pub-2010 report includes tables developed specifically for disabled police & fire members based on statistically credible national data sets for these populations, so we were able to refine this assumption first effective with the 2018 Experience Study. Using a benefits-weighted approach, the selected variations of the Pub-2010 Disabled Retiree mortality tables fell within a 90 percent confidence interval around observed experience for all groups.

Disabled Retired Mortality
Aggregate Confidence Intervals and Rates



Mortality (*continued*)

A summary of current and recommended disabled retiree mortality assumptions is shown below:

	Recommended December 31, 2018 and 2019 Valuations	Recommended December 31, 2020 and 2021 Valuations
Basic Table	Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
Disabled Police & Fire male	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
Disabled General Service male	Non-Safety, set forward 24 months	No change
Disabled Police & Fire female	Blended 50% Public Safety, 50% Non-Safety, no set back	No change
Disabled General Service female	Non-Safety, set forward 12 months	No change

Non-Annuitant Mortality

The non-annuitant mortality assumption applies to active members and dormant members (those members who have terminated employment but have a vested right to a future benefit). As with the other mortality assumptions, we recommend continued use of the Pub-2010 base mortality tables and the 60-year average unisex Social Security mortality improvement scale as the starting point for setting mortality assumptions for this group. This will maintain a consistent basis for mortality assumptions, as has been the case in prior studies.

For a given age and gender, an employed person is on average less likely to die in a given year than a retired person of the same age and gender. We recommend using separate Pub-2010 Healthy Retiree and Pub-2010 Employee mortality tables for healthy annuitants and non-annuitants, respectively. Each Healthy Retiree table published by the SOA has a corresponding Employee table, which reflects differences in the anticipated mortality rates for the retiree and employee populations.

For each population subgroup, we recommend using the Pub-2010 Employee base mortality table (including adjustments) that corresponds to the Healthy Retiree table selected for that subgroup, and then adjusting the mortality rates with a scaling factor if needed to better match recent Oregon PERS experience. For example, mortality for non-annuitant General Service females will be assumed to follow the Pub-2010 Employee base mortality table for the general employees job category, with no set back, and will be projected generationally using the Social Security unisex mortality improvement scale (all of which parallels treatment for the corresponding retiree group), and will then be scaled by a factor of 125% to better match the aggregate Oregon PERS-specific experience of the relevant employee group.

The relative values of corresponding Pub-2010 Employee and Healthy Retiree base mortality tables were developed by the SOA based on a much larger population than that of Oregon PERS. As a result, we believe it is preferable to reflect that relationship as the starting point when developing non-annuitant versions of the recommended healthy annuitant mortality tables for Oregon PERS. The analysis below compares recent experience in aggregate for the non-annuitant population under this approach. This comparison was done on a headcount-weighted basis only since the final level of retirement benefits cannot be predicted with certainty for current active members.

Mortality (continued)

	Headcount-Weighted		Current Assumption		Recommended Assumption	
	Exposures	Actual Deaths	Expected Deaths	A/E Ratio	Expected Deaths	A/E Ratio
Total Non-Annuitant Experience	637,425	795	730	109%	739	108%

In aggregate, using the recommended Pub-2010 Employee base mortality tables corresponding to the relevant recommended Healthy Retiree mortality tables for each subgroup and adjusted as noted below produces an A/E ratio of 108 percent. For a headcount-weighted analysis, we prefer an A/E ratio near 110 percent to approximate an outcome similar to targeting 100 percent on a benefits-weighted basis. The actual A/E ratio of 108 percent shown is sufficiently close to that 110 percent target.

A summary of the current and recommended non-annuitant mortality assumptions is shown below:

	Recommended December 31, 2018 and 2019 Valuations	Recommended December 31, 2020 and 2021 Valuations
Basic Assumption	Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
School District male	120% of Employee table with same job category and set back as Healthy Retiree assumption	125% of Employee table with same job category and set back as Healthy Retiree assumption
Other General Service male	115% of Employee table with same job category and set back as Healthy Retiree assumption	No change
Police & Fire male	100% of Employee table with same job category and set back as Healthy Retiree assumption	No change
School District female	100% of Employee table with same job category and set back as Healthy Retiree assumption	No change
Other General Service female	125% of Employee table with same job category and set back as Healthy Retiree assumption	No change
Police & Fire female	100% of Employee table with same job category and set back as Healthy Retiree assumption	No change

Retirement Assumptions

The retirement assumptions used in the actuarial valuation include the following assumptions:

- Retirement from active status
- Probability a member will elect a lump sum option at retirement
- Percentage of members who elect to purchase credited service at retirement.
- Probability a member will remain an Oregon resident during retirement.

Retirement from Active Status

Members are eligible to retire as early as age 55 (50 for police & fire members), or earlier if the member has 30 years of service. In our analysis, we have found significant differences in the retirement patterns based on length of service, employment category (general service or police & fire), and current eligibility for immediate unreduced benefits.

A summary of the early, normal, and unreduced retirement dates under the plan are as follows:

Employment Category	Tier	Normal Retirement Age	Early Retirement Age	Unreduced Retirement
General Service	1	58	55	30 years of service
General Service	2	60	55	30 years of service
General Service	OPSRP	65	55	Age 58 with 30 years
Police & Fire	1 and 2	55	50	30 years of service, or age 50 with 25 years of service
Police & Fire	OPSRP	60	50	Age 53 with 25 years
State Judiciary	N/A	65	60	60 if Plan B; N/A if Plan A

Structure for Retirement Rates

The structure of the PERS retirement rate assumption separates rates by job classification and by service level. General service rates differ across three service bands: less than 15 years, 15 to 29 years, and 30 or more years of service. Each service band has different assumptions for school districts versus all other general service members. Police & fire rates employ the following three service bands: less than 13 years, 13 to 24 years, and 25 or more years of service. Previously, we applied a 100% likelihood of retirement assumption starting at age 65 for police & fire members and age 70 for general service members. While the large majority of members continue to retire prior to those ages, in order to recognize a gradual trend toward longer working careers we recommend increasing the age at which the 100% likelihood of retirement assumption applies to age 70 for police & fire and age 75 for general service.

The service band structure anticipates that many members' retirement decisions will contemplate the amount of the retirement benefit and the affordability of retirement.

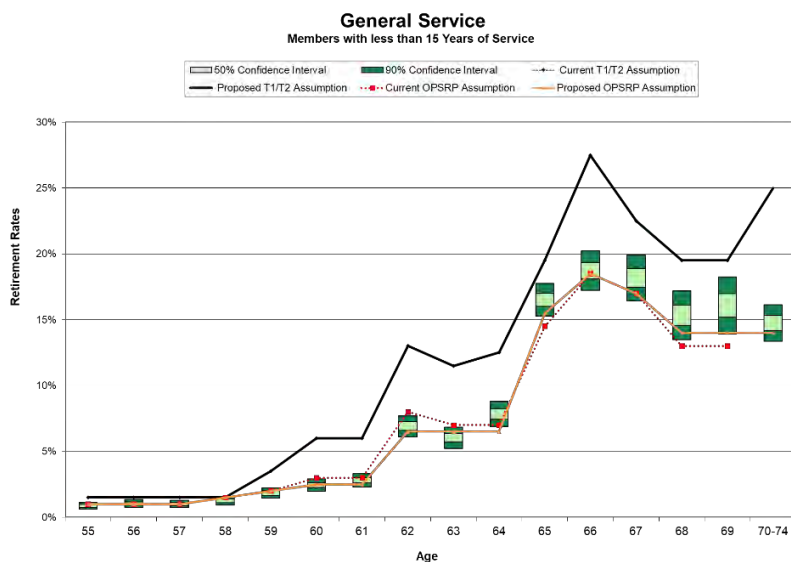
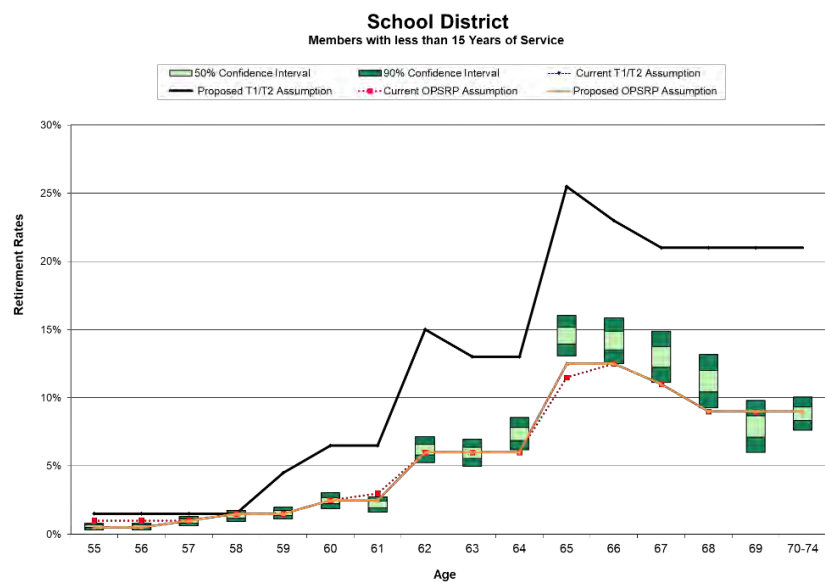
School District and General Service Retirement Rates

Members with Less Than 15 Years of Service

Retirement decisions by members with less than 15 years of service are likely to be heavily influenced by the availability of resources other than PERS benefits, including Social Security, prior employment, spousal benefits, and savings.

Retirement Assumptions (continued)

The following charts show the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for school district and general service members retiring with less than 15 years of service. Given that all new entrants since August 2003 are in OPSRP, most recent experience in this service band is for OPSRP members.

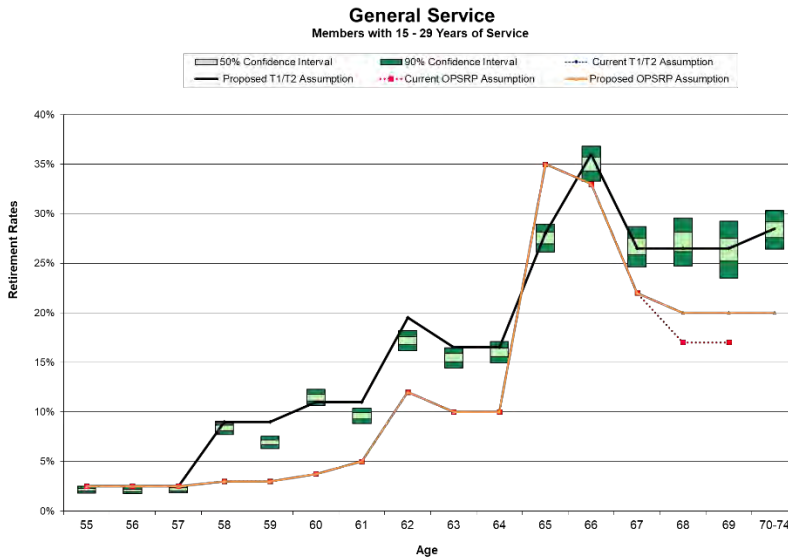
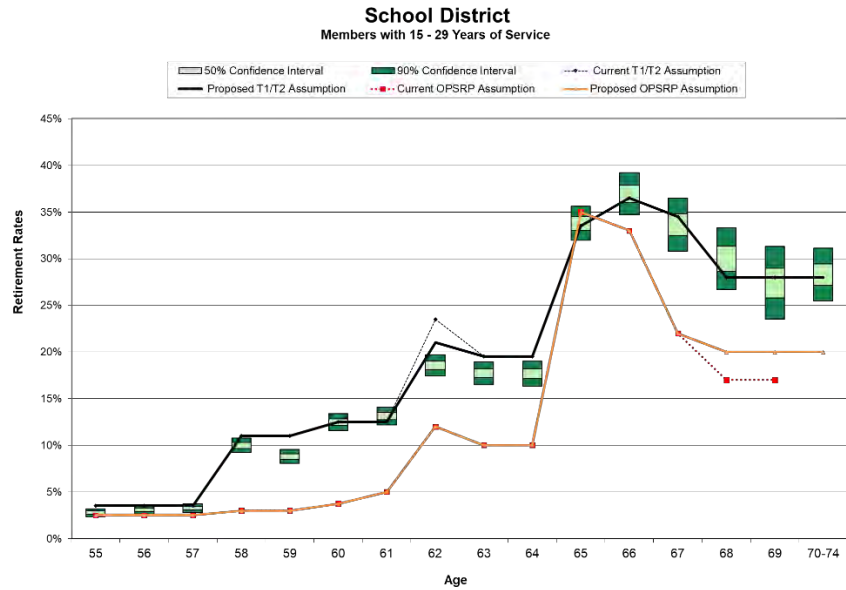


Retirement Assumptions (continued)

Members with 15 to 29 Years of Service

Retirement decisions by members with 15 to 29 years of service are likely to be influenced by the structure of PERS benefits as well as the availability of other resources, including Social Security, prior employment, spousal benefits, and savings.

The following charts show the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for school district and general service members retiring with 15 to 29 years of service. Almost all recent experience for members in this service band is for Tier 1 and Tier 2 members.

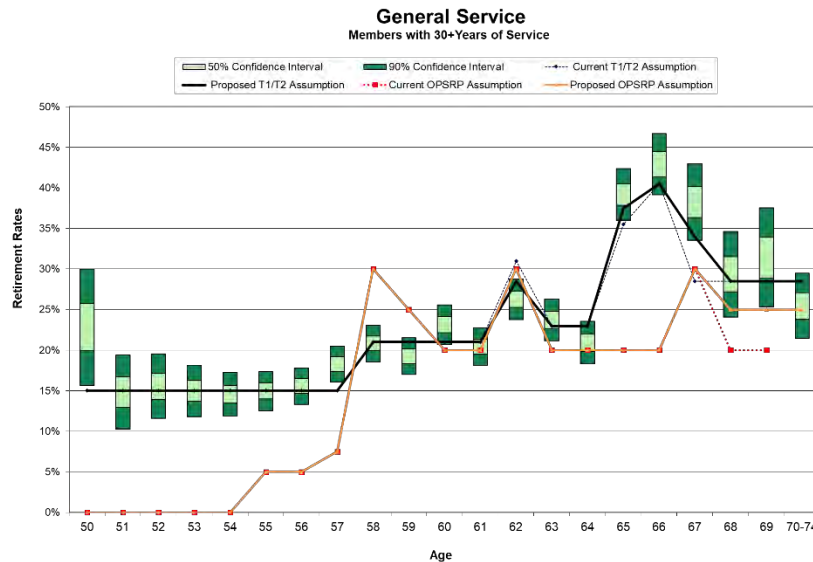
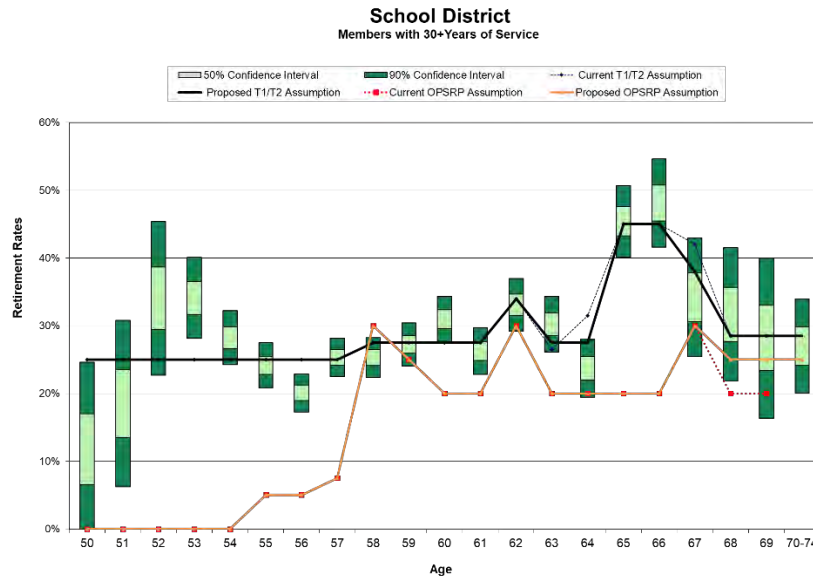


Retirement Assumptions (continued)

Members with 30 or More Years of Service

Members with 30 or more years of service are eligible for unreduced PERS benefits at any age (age 58 for OPSRP). As a result, retirement rates at all ages are relatively high, with a spike when Social Security benefits become available.

The following charts show the current assumed rates of retirement, the confidence interval around observed experience and the recommended retirement rate assumption for school district and other general service members retiring with 30 or more years of service. All recent experience is for Tier 1 members.



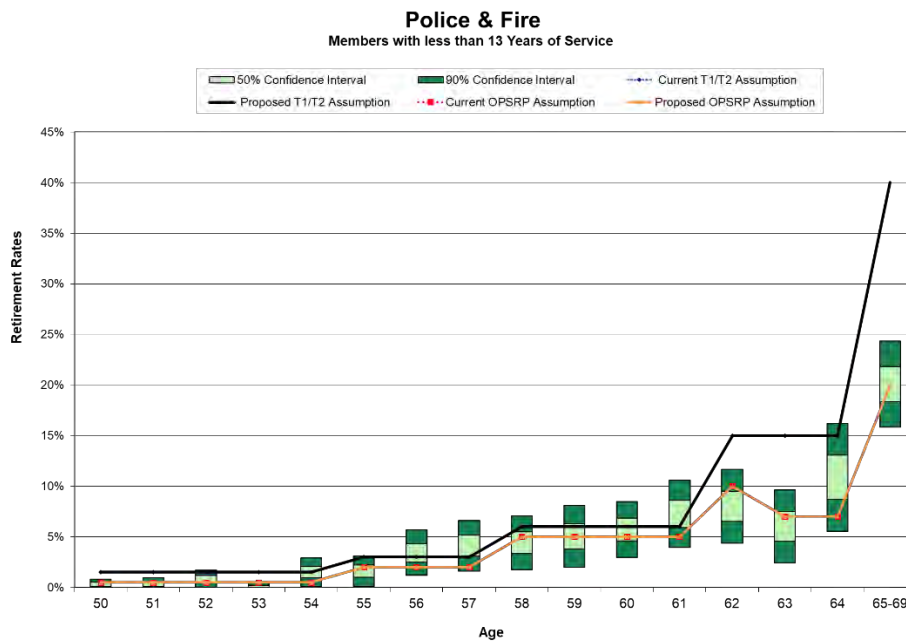
Retirement Assumptions (continued)

Police & Fire

Members with Less Than 13 Years of Service

The retirement assumption for police & fire members differs for members retiring with less than 13 years of service, those retiring with 13 to 24 years of service, and those retiring with 25 or more years of service. Retirement decisions by members with less than 13 years of service are likely to be heavily influenced by the availability of resources other than PERS benefits, including Social Security, prior employment, spousal benefits, and savings.

The following graph shows the current assumed rates of retirement, the confidence interval around observed experience and the recommended retirement rate assumption for police & fire members retiring with less than 13 years of service. Given that all new entrants since August 2003 are in OPSRP, almost all recent experience in this service band is for OPSRP members.

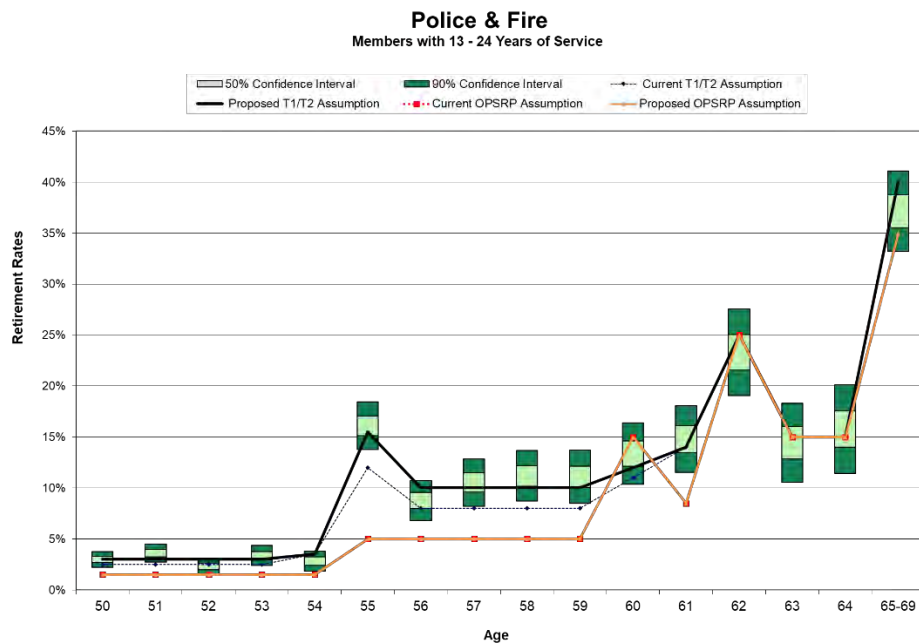


Retirement Assumptions (continued)

Members with 13 to 24 Years of Service

Retirement rates for members with 13 to 24 years of service are likely to be influenced by the structure of PERS benefits as well as the availability of other resources, including Social Security, prior employment, spousal benefits, and savings.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for police & fire members retiring with 13 to 24 years of service. Most recent experience for members in this service band is for Tier 1 and Tier 2 members.

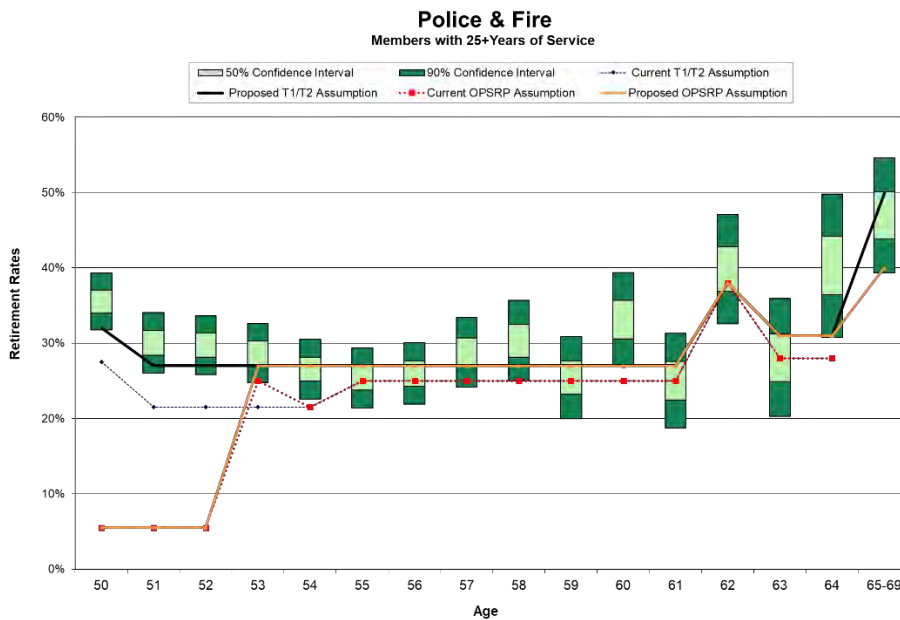


Retirement Assumptions (continued)

Members with 25 or More Years of Service

Police & fire members with 25 or more years of service can retire immediately at age 50 (53 for OPSRP) with unreduced retirement benefits. As a result, retirement rates at all ages are relatively high, with a spike at first eligibility for unreduced benefits, and another increase when Social Security benefits first become available.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for police & fire members retiring with 25 or more years of service. All recent experience for members in this service band is for Tier 1 members.

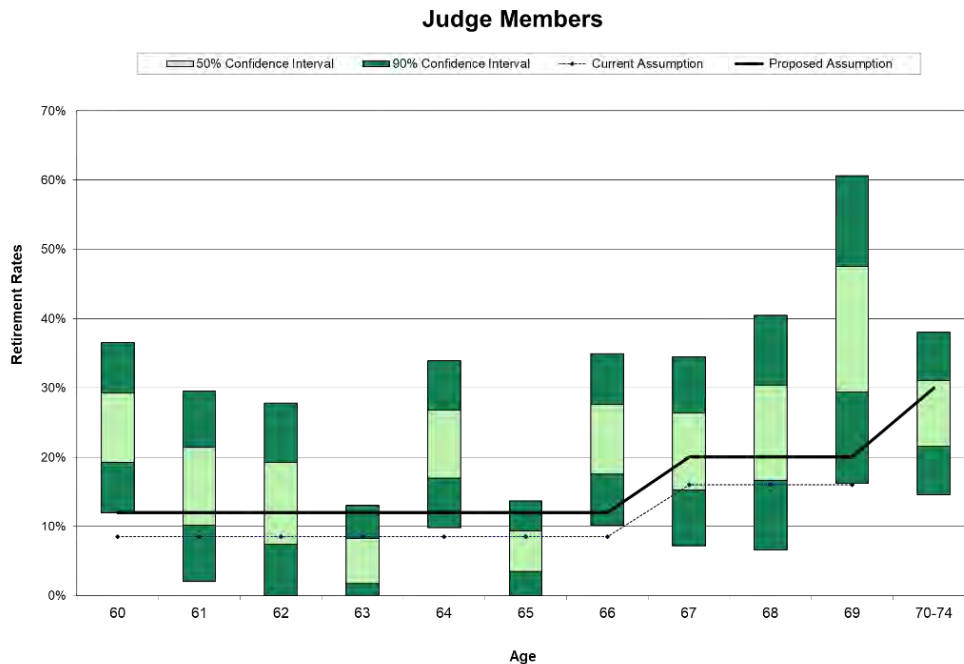


Retirement Assumptions (*continued*)

Judges

The vast majority of members of the State Judiciary elect to receive PERS benefits under Plan B. These benefits are available on an unreduced basis immediately upon retirement eligibility at age 60. As a result, there is relatively little variation in retirement rates by age for these members.

The following chart shows the current assumed rates of retirement, the confidence interval around observed experience, and the recommended retirement rate assumption for members of the State Judiciary.



Retirement Assumptions (continued)

Summary of Recommended Retirement Rates

The following table summarizes our recommended Tier 1/Tier 2 retirement rates:

Tier 1/Tier 2 Recommended December 31, 2020 and 2021 Valuations										
	Police & Fire			General Service			School Districts			Judges
Age	< 13 yrs	13-24 yrs	25+ yrs	<15 yrs	15-29 yrs	30+ yrs	<15 yrs	15-29 yrs	30+ yrs	
Less than 50						15.0%			25.0%	
50	1.5%	3.0%	32.0%			15.0%			25.0%	
51	1.5%	3.0%	27.0%			15.0%			25.0%	
52	1.5%	3.0%	27.0%			15.0%			25.0%	
53	1.5%	3.0%	27.0%			15.0%			25.0%	
54	1.5%	3.5%	27.0%			15.0%			25.0%	
55	3.0%	15.5%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
56	3.0%	10.0%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
57	3.0%	10.0%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%	25.0%	
58	6.0%	10.0%	27.0%	1.5%	9.0%	21.0%	1.5%	11.0%	27.5%	
59	6.0%	10.0%	27.0%	3.5%	9.0%	21.0%	4.5%	11.0%	27.5%	
60	6.0%	12.0%	27.0%	6.0%	11.0%	21.0%	6.5%	12.5%	27.5%	12.0%
61	6.0%	14.0%	27.0%	6.0%	11.0%	21.0%	6.5%	12.5%	27.5%	12.0%
62	15.0%	25.0%	38.0%	13.0%	19.5%	28.5%	15.0%	21.0%	34.0%	12.0%
63	15.0%	15.0%	31.0%	11.5%	16.5%	23.0%	13.0%	19.5%	27.5%	12.0%
64	15.0%	15.0%	31.0%	12.5%	16.5%	23.0%	13.0%	19.5%	27.5%	12.0%
65	40.0%	40.0%	50.0%	19.5%	28.0%	37.5%	25.5%	33.5%	45.0%	12.0%
66	40.0%	40.0%	50.0%	27.5%	36.0%	40.5%	23.0%	36.5%	45.0%	12.0%
67	40.0%	40.0%	50.0%	22.5%	26.5%	34.0%	21.0%	34.5%	38.0%	20.0%
68	40.0%	40.0%	50.0%	19.5%	26.5%	28.5%	21.0%	28.0%	28.5%	20.0%
69	40.0%	40.0%	50.0%	19.5%	26.5%	28.5%	21.0%	28.0%	28.5%	20.0%
70	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%	28.5%	30.0%
71	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%	28.5%	30.0%
72	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%	28.5%	30.0%
73	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%	28.5%	30.0%
74	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%	28.5%	30.0%
75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (continued)

The following table summarizes our recommended OPSRP retirement rates:

OPSRP Recommended December 31, 2020 and 2021 Valuations									
	Police & Fire			General Service			School Districts		
Age	< 13 yrs	13-24 yrs	25+ yrs	<15 yrs	15-29 yrs	30+ yrs	<15 yrs	15-29 yrs	30+ yrs
50	0.5%	1.5%	5.5%						
51	0.5%	1.5%	5.5%						
52	0.5%	1.5%	5.5%						
53	0.5%	1.5%	27.0%						
54	0.5%	1.5%	27.0%						
55	2.0%	5.0%	27.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
56	2.0%	5.0%	27.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
57	2.0%	5.0%	27.0%	1.0%	2.5%	7.5%	1.0%	2.5%	7.5%
58	5.0%	5.0%	27.0%	1.5%	3.0%	30.0%	1.5%	3.0%	30.0%
59	5.0%	5.0%	27.0%	2.0%	3.0%	25.0%	1.5%	3.0%	25.0%
60	5.0%	15.0%	27.0%	2.5%	3.75%	20.0%	2.5%	3.75%	20.0%
61	5.0%	8.5%	27.0%	2.5%	5.0%	20.0%	2.5%	5.0%	20.0%
62	10.0%	25.0%	38.0%	6.5%	12.0%	30.0%	6.0%	12.0%	30.0%
63	7.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
64	7.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
65	7.0%	35.0%	40.0%	15.5%	35.0%	20.0%	12.5%	35.0%	20.0%
66	7.0%	35.0%	40.0%	18.5%	33.0%	20.0%	12.5%	33.0%	20.0%
67	7.0%	35.0%	40.0%	17.0%	22.0%	30.0%	11.0%	22.0%	30.0%
68	7.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
69	7.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
70	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
71	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
72	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
73	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
74	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (continued)

Lump Sum Option at Retirement

At retirement, a member has the option of electing a total lump sum distribution equal to two times the member’s account balance, a partial lump sum distribution equal to the member’s account balance with a reduced monthly allowance, or a monthly allowance with no lump sum distribution. The percentage of active members electing a lump sum distribution at retirement has declined slightly from the prior experience study. The results of our analysis are as follows:

Election at Retirement	Number of Retired Members	Percentage of Retirements	December 31, 2019 Valuation Assumption	Recommended December 31, 2020 and 2021 Valuations
Partial Lump Sum	443	2.1%	3.0%	2.0%
Total Lump Sum				
• 2015	110	2.0%	3.0%	N/A
• 2016	98	1.9%	2.5%	N/A
• 2017	103	1.6%	2.0%	N/A
• 2018	69	1.4%	1.5%	N/A
• 2019	38	0.7%	1.0%	N/A
• 2020	50	1.0%	0.5%	N/A
• 2021+	TBD	TBD	0.0%	0.0%

When a member elects a total or partial lump sum under Money Match or a partial lump sum under Full Formula, they give up the value of future COLAs (cost of living allowances) on the lump sum amount. A total lump sum election under Full Formula may cause the member to give up significantly more. Because there are no new contributions to member accounts and the system is projected to become dominated by Full Formula over time, we expect the total lump sum rate to decline over time.

Based on the data shown above, we recommend lowering the partial lump sum assumption of 3.0 percent to 2.0 percent. For the total lump sum assumption, in general we have seen a continuation of the long-term decrease in utilization of this option, despite a slight uptick in 2020. Given that recent experience has been at or below 1.0 percent and that a lower rate for this assumption is conservative (produces higher valuation liabilities), we recommend assuming no future total lump sum elections by members.

Retirement Assumptions (*continued*)

Purchase of Credited Service

A member has the option of purchasing service at retirement to enhance their retirement benefits. Service may be purchased under one or more of the following categories:

- Purchase of forfeited service
- Credit for waiting time
- Credit for educational service
- Credit for military service
- Credit for seasonal positions
- Credit for police officers and firefighters
- Purchase of retirement credit for disability time

Most purchases are full cost purchases, meaning the member pays both the member and employer cost to obtain the service. Since the member pays the full cost of the service purchased, the purchase produces no impact or only a small impact on projected Tier 1/Tier 2 employer costs. The most common, and predictable, non-full cost service purchase made by members is purchasing credit for the six-month waiting period. Thus, for valuation purposes, we have included an adjustment to account for those members who are expected to make the waiting period service purchase.

For Money Match retirements, the purchase of credited service is generally cost-neutral to the system, because the member is depositing both the member and employer contributions. Therefore, in reviewing actual experience, we examined non-Money Match retirements. The following table shows the number of members who retired in the experience period and elected to purchase credit for the six-month waiting period:

	Count	Number Electing to Purchase Waiting Time Service	Percentage of Retirements	December 31, 2019 Valuation Assumption	Recommended December 31, 2020 and 2021 Valuations
Non-Money Match Retirements	12,439	9,218	74%	70%	75%

We recommend increasing the assumption of non-Money Match retirements purchasing credited service for the six-month waiting period from 70 percent to 75 percent.

Retirement Assumptions (*continued*)

Oregon Residency Status

Members who are eligible for a tax remedy benefit adjustment under Senate Bill 656 or House Bill 3349 may only receive the adjustment if they remain residents of Oregon for tax purposes while retired. Since a member’s residency status may change multiple times during retirement, the residency status of a newly retired member may not be representative of that member’s probability of remaining resident later in retirement. As such, we analyzed the entire current population of retired members and beneficiaries who are eligible for a tax remedy and compared to the number who are currently receiving a tax remedy. The results of that analysis are as follows:

Number Eligible for Tax Remedy	Number Receiving Tax Remedy	Percentage Receiving Tax Remedy	December 31, 2019 Valuation Assumption	Recommended December 31, 2020 and 2021 Valuations
117,274	98,854	84%	85%	85%

Disability Incidence Assumptions

The Plan provides duty and non-duty disability benefits to members. Members are eligible to receive duty disability benefits if they become disabled as a direct result of a job-related injury or illness, regardless of length of service. Members are eligible for non-duty disability benefits (also referred to as ordinary disability) if they become disabled after ten years of service (six years if a judge), but prior to normal retirement eligibility.

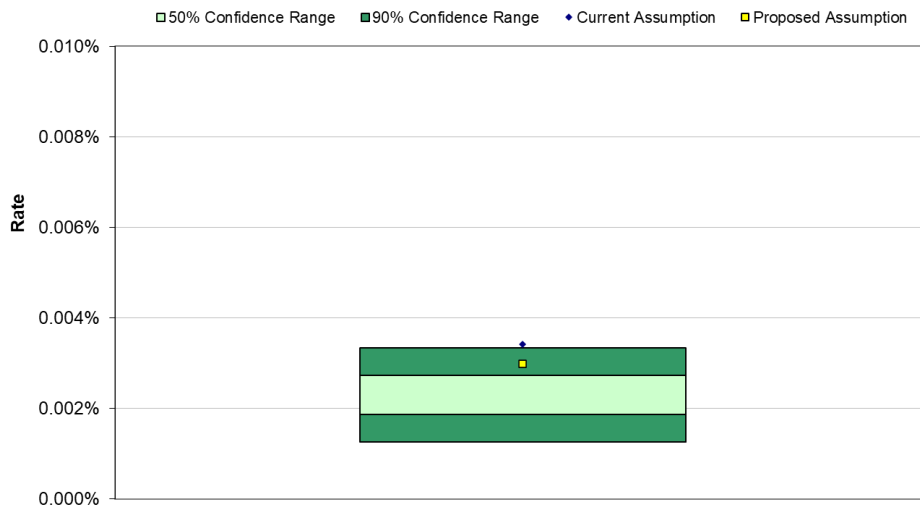
Duty disability incidence rates are developed separately for police & fire and general service members. Ordinary (non-duty) disability rates are developed for the system as a whole.

Duty Disability

Due to the limited amount of experience data available at some ages, this assumption employs a standard table adjusted to fit within the aggregate confidence interval.

The current assumed aggregate rate for the general service assumption is just above the 90 percent confidence interval of the disability rates experienced. As such, we recommend updating the assumption.

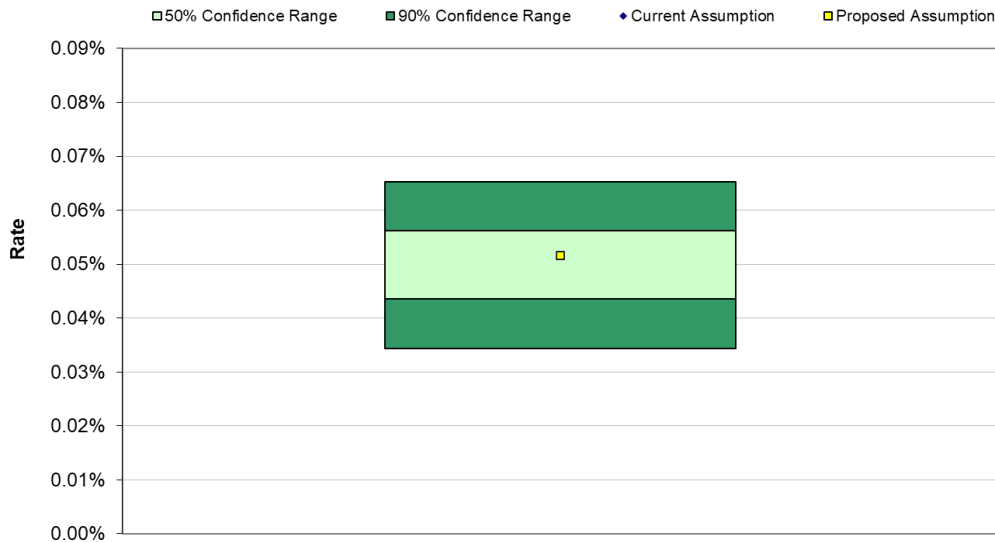
Duty Disability Rates - General Service
Aggregate Confidence Intervals and Rates



The current assumed aggregate rate for police & fire members is within the 50 percent confidence interval. As such, we recommend maintaining the current assumption and continuing to monitor experience in the next study.

Disability Incidence Assumptions (continued)

Duty Disability Rates - Police & Fire Aggregate Confidence Intervals and Rates

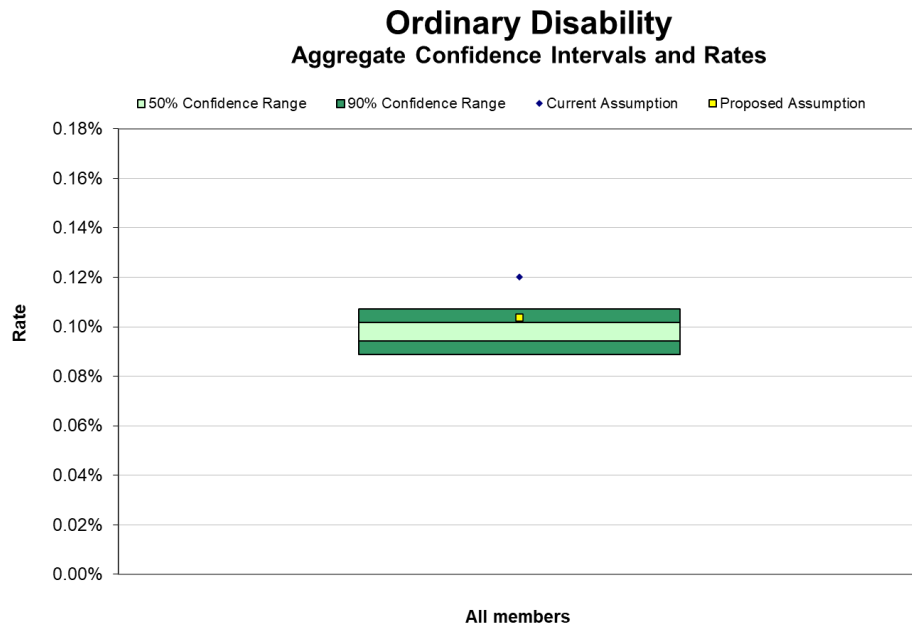


Ordinary (Non-Duty) Disability

As with duty disability, the experience data for ordinary disability was very limited at specific ages. Therefore, this assumption also uses a standard table adjusted to fit within the aggregate confidence interval. Based on the disability rates experienced in the observation period, we recommend lowering the ordinary disability incidence assumption at this time.

The data underlying the ordinary disability study showed a pattern wherein a member’s record would only be recognized as a disability retirement (rather than a service retirement or other separation from service) after a lag period that could span over a year. Because such lagged experience is not yet available for 2020, the final year of our study, we included in our analysis an assumption as to additional disabilities occurring in 2020 that will not be apparent until the subsequent reporting period. This assumption was based on an average of such records observed in the first three years of the study.

Disability Incidence Assumptions (continued)



The following table summarizes our recommended disability incidence rate assumptions:

	Percentage of the 1985 Disability Class 1 Rates (sample rates shown for ages 20–55)	
	December 31, 2019 Valuation	Recommended December 31, 2020 and 2021 Valuations
Duty Disability		
• Police & Fire	20% (0.0060%–0.1690%)	No change
• General Service	0.8% (0.0002%–0.0068%)	0.7% (0.0002%–0.0059%)
Ordinary Disability	30% with 0.18% cap (0.0090%–0.1800%)	25% with 0.16% cap (0.0075%–0.1600%)

Termination Assumptions

Not all active members are expected to continue working for covered employers until retirement. Termination rates represent the probabilities that a member will leave covered employment for causes other than retirement, disability or death at any given point during their working career.

Termination rates have been developed as service-based assumptions. The service-based assumptions reflect the experience of Tier 1, Tier 2, and OPSRP members, with each group affecting the period of the table relating to the relevant service amount.

Assumptions are developed for the following groups:

- School District males
- School District females
- Other General Service males
- Other General Service females
- Police & Fire (single table for both males and females)

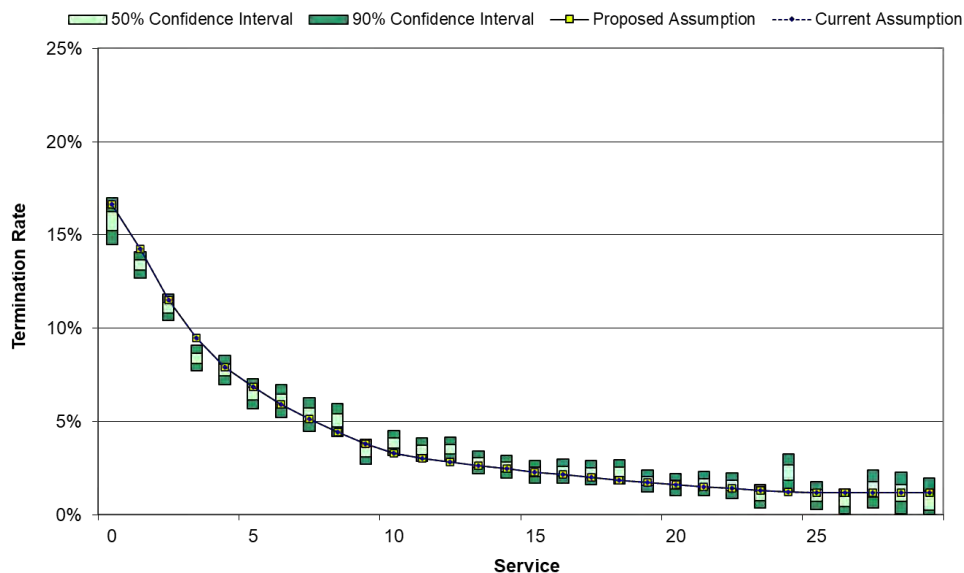
Termination Rates

The following charts show the confidence interval around observed experience and the recommended rates of termination by year of service. These charts are based on the observed experience of members in the relevant group during the study period. We recommend changes to the assumption for non-school district general service females. For the other four groups, we recommend maintaining the current assumption and evaluating again with the next study.

Full listings of recommended termination assumptions are included in the appendix.

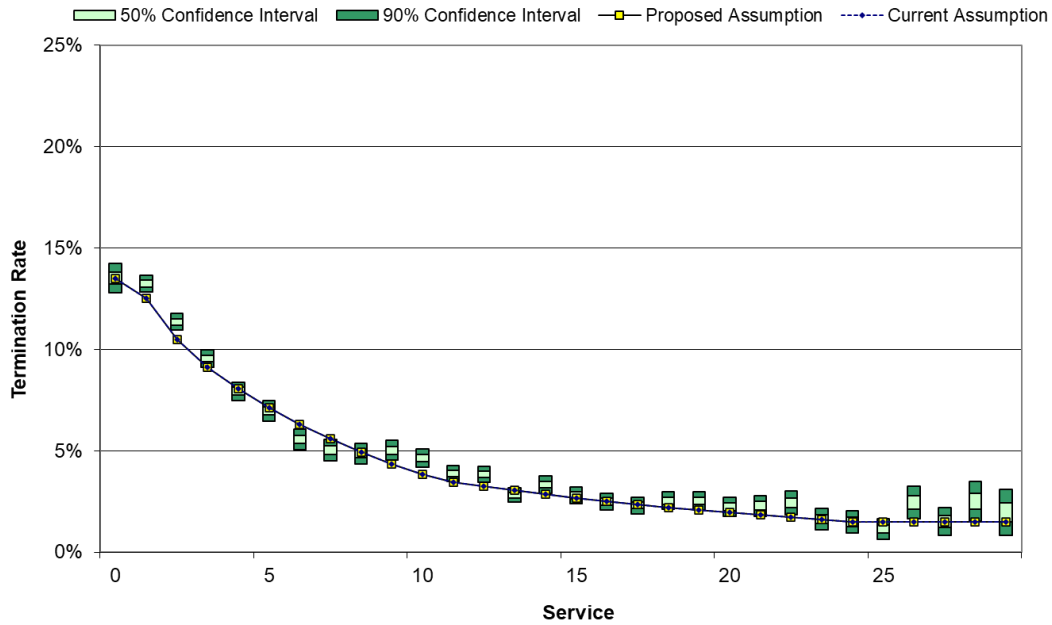
School Districts

School District Male



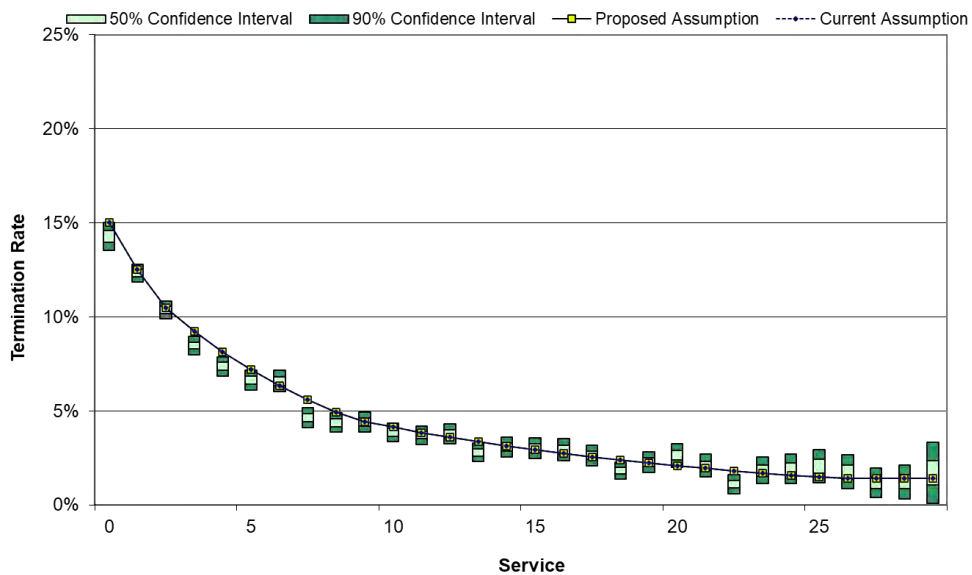
Termination Assumptions (continued)

School District Female



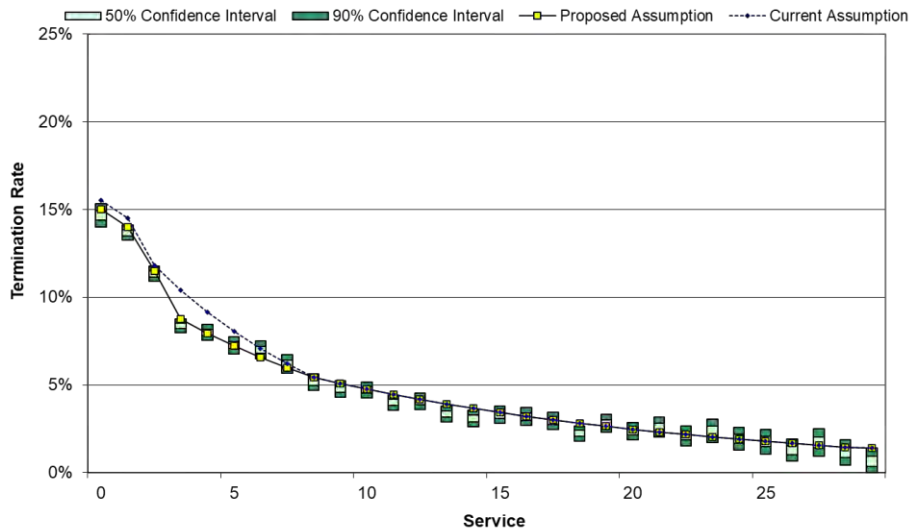
General Service

Other General Service Male



Termination Assumptions (continued)

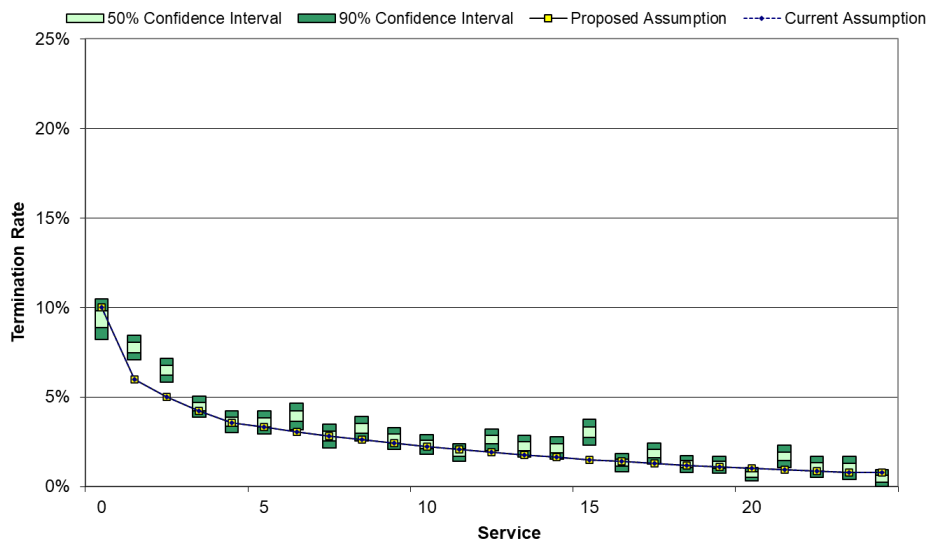
Other General Service Female



Police & Fire

All police & fire members were rated together, with no variation by group or gender. While actual terminations were higher than the current assumptions for current service of one and two years, this was primarily driven by outlier experience during 2020. Since this may not be predictive of future experience and the overall assumption still fit well, we are not recommending a change in assumption at this time.

Police & Fire



Salary Increase Assumptions

The salary increase assumptions analyzed with demographic experience were:

- Annual individual member salary increases
- Unused sick leave adjustments to final average salary at time of retirement for eligible members
- Unused vacation cash out adjustments to final average salary at time of retirement for eligible members

Annual Individual Member Salary Increases

The merit scale component of the annual individual member salary increase assumption is used in conjunction with the inflation and real wage growth assumptions to project annual individual member salary increases. In developing this assumption, our analysis first focused on the gross salary increases received by members during the observation period. The assumed merit (or longevity) component of the overall annual increase was then determined by backing out assumed inflation and real wage growth.

In order to capture experience across a broader range of budget, collective bargaining, and economic cycles, our initial analysis covered observed salary experience from 2012 through 2020. However, after discussion with PERS staff, certain data points were excluded due to the existence of one-off salary changes that are not expected to be indicative of anticipated future salary experience. These were:

- School district salary experience for 2020 was lower than most other years in the study. We understand at least part of the reason was due to furloughs effective in Spring 2020 during the early months of the pandemic.
- Salary increases for Other General Service in 2017 and 2019 and for police & fire in 2019 were affected by bargained changes wherein the 6% member contribution would no longer be “picked up” for a large number of members, and those members received a 6.95% salary increase when the change occurred.

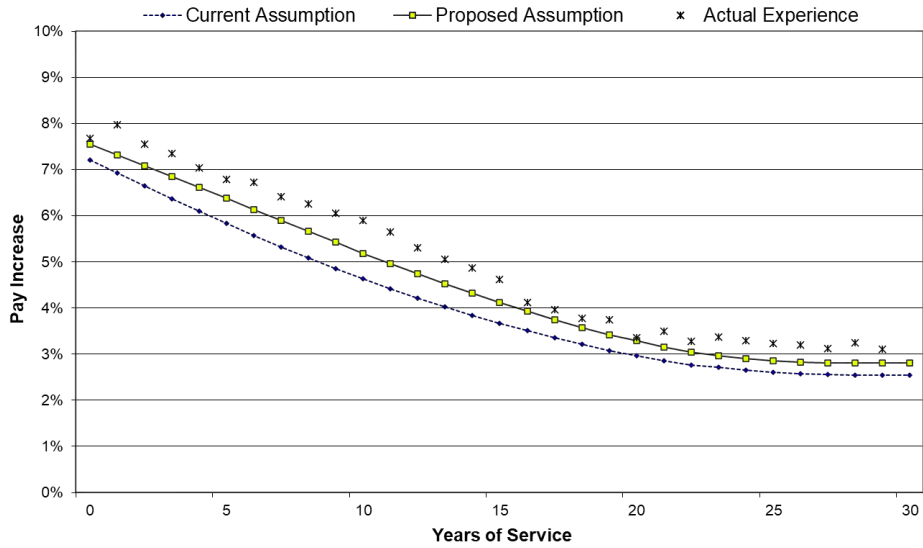
Assumptions are developed for the following groups:

- School Districts
- Other General Service
- Police & Fire

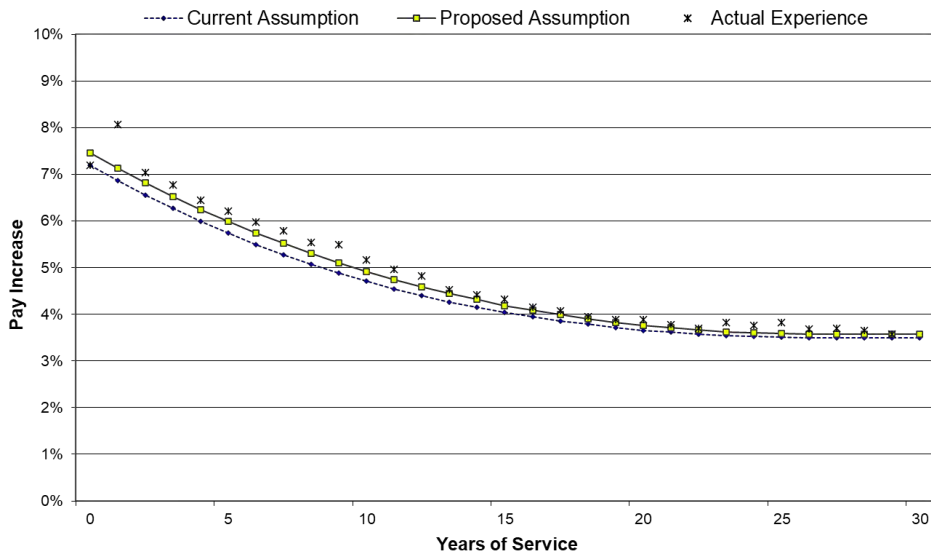
The following charts show the current assumed rates of gross salary increases, the average of salary increases based on the included experience (per the discussion above) over the study’s experience observation period, and the recommended rates of assumed gross individual member annual salary increases. We recommend increasing the current individual member salary increase assumption for all groups. The proposed rates strike a balance between the previous assumptions and the included experience from the study’s experience observation period.

Salary Increase Assumptions (*continued*)

School Districts

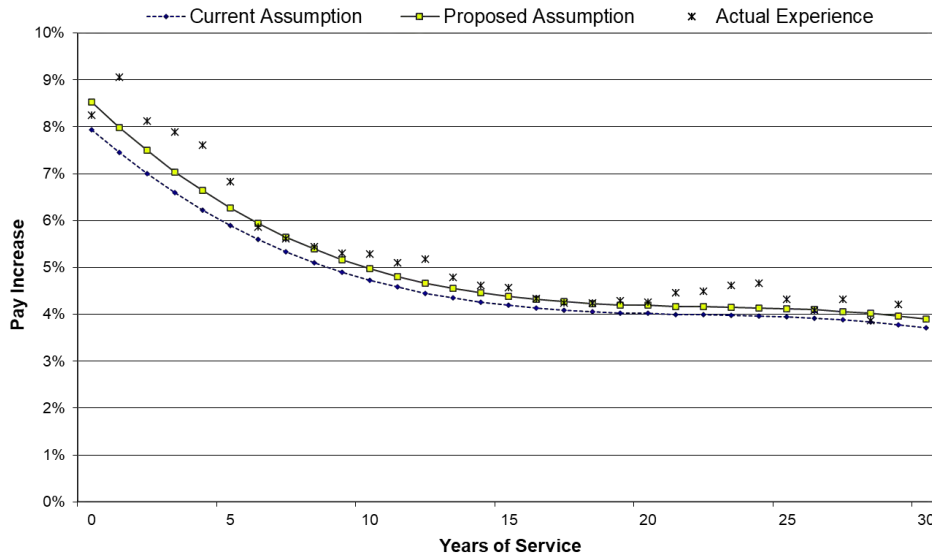


Other General Service



Salary Increase Assumptions (*continued*)

Police & Fire

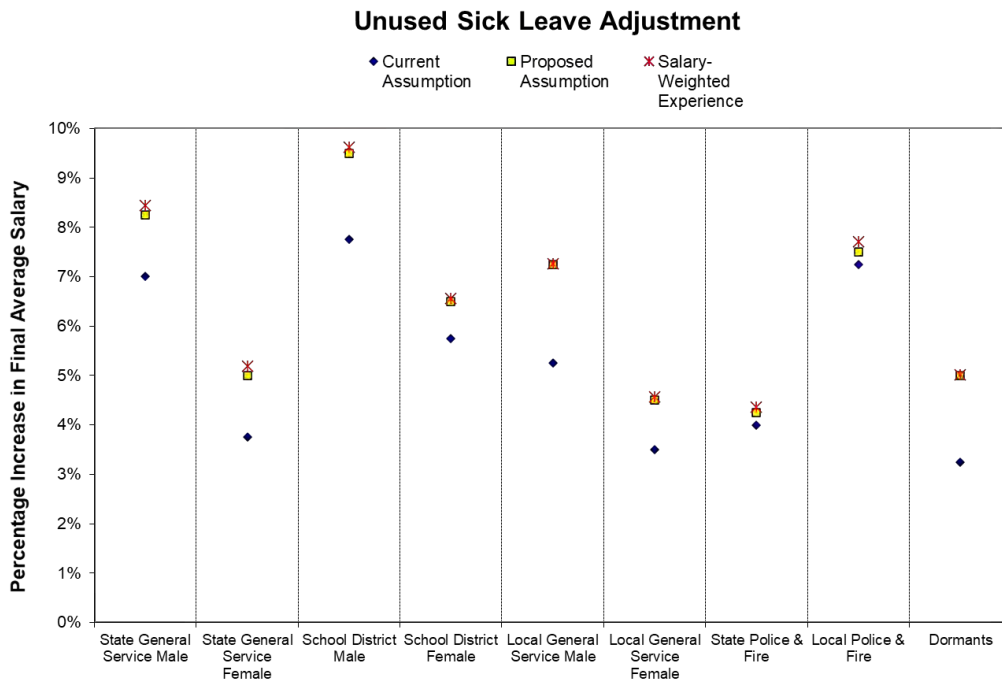


Salary Increase Assumptions (continued)

Unused Sick Leave Adjustment at Time of Retirement

Employers may elect to participate in the Unused Sick Leave Program. This program allows Tier 1/Tier 2 members to convert the value of one-half of their accumulated sick leave into additional retirement benefits. The assumption represents the percentage increase in a member’s final average salary due to the inclusion of the value of 50 percent of the member’s accumulated sick leave, and is only applied to employers who participate in the program.

For active members, there are currently eight sets of rates developed by employer group, employment category (general service or police & fire), and gender. In addition, a single rate is developed for eligible dormant members. The chart below shows the current assumption, the four-year average of the observed experience, and the recommended assumption for each of the groups studied.

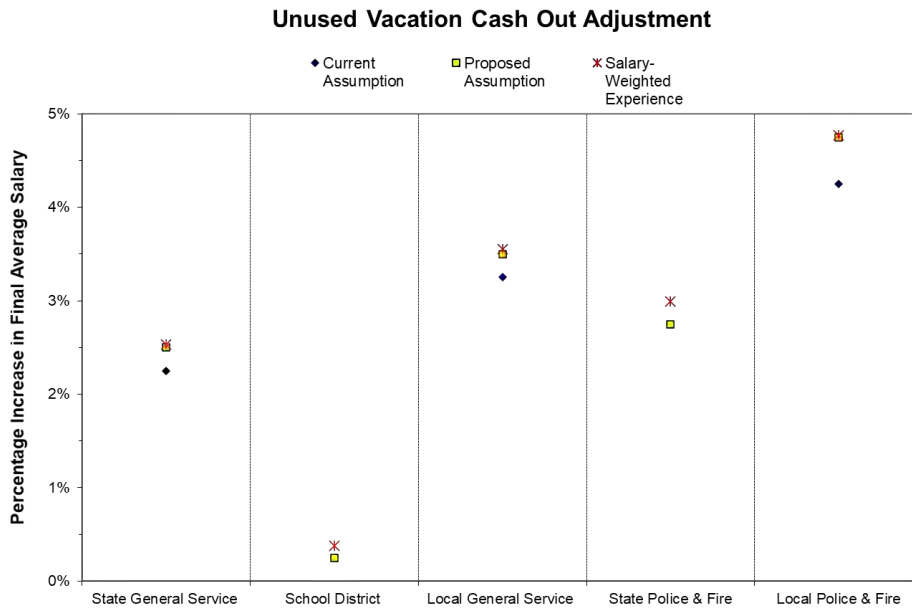


The non-retired Tier 1/Tier 2 population continues to decrease in size. While decreasing in number, the remaining group over time will have an increasing level of average service. As a result of these factors, we have continued to see the average unused sick leave adjustment per eligible member increase. To reflect that in this study, we have adjusted our analysis to more heavily weight experience for higher salary members, which has led to recommended increases to this assumption for all groups. While the recommended assumptions are higher, the assumption will apply to a smaller group over time.

Salary Increase Assumptions (*continued*)

Unused Vacation Cash Out Adjustment

Tier 1 members are eligible to include the value of any lump sum payment of unused vacation pay in the calculation of their final average salary. The assumption shown below represents the percentage increase in a member's final average salary expected to result from this provision. Similar to the unused sick leave adjustment we have adjusted our analysis to more heavily weight experience for higher salary members, though for the unused vacation cash out adjustment this led to recommended assumption updates for three of five groups, rather than all groups.



Retiree Healthcare Assumptions

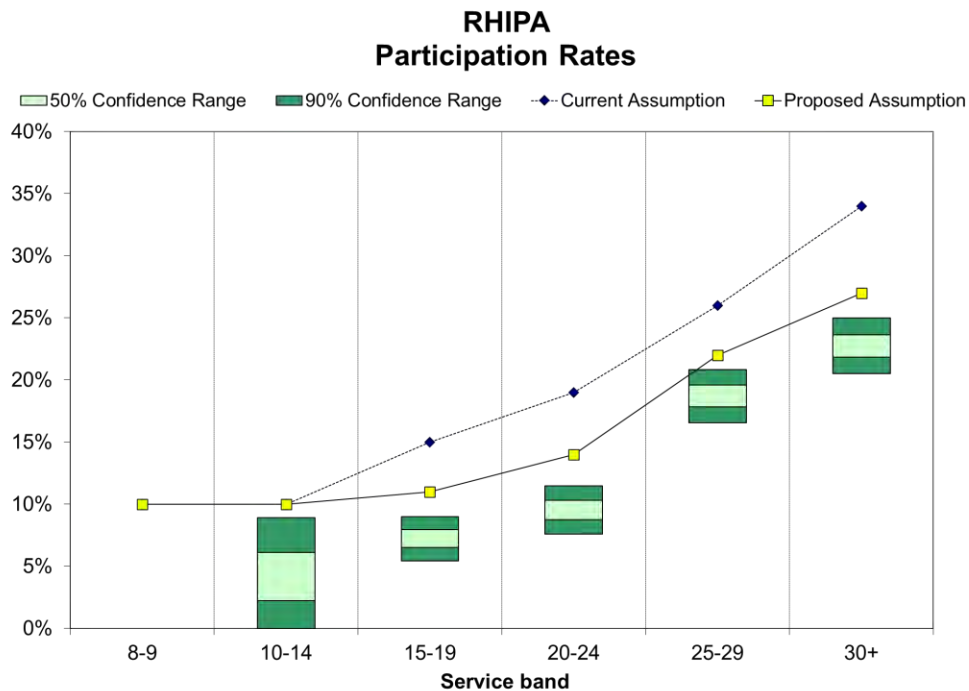
There are two retiree healthcare programs offered to eligible Tier 1/Tier 2 members, the Retiree Health Insurance Premium Account (RHIPA) and the Retiree Health Insurance Account (RHIA).

RHIPA

RHIPA is a program for eligible retirees from State of Oregon employment that provides a subsidized pre-Medicare insurance plan. In the previous valuation, the participation rate assumption for future eligible retirees varied based on service at the time of retirement, as the level of employer-paid benefits in the RHIPA program varies by service level. We recommend continuing this structure for the assumption.

The current participation assumptions are consistently higher than recent observed participation experience. We recommend decreasing the assumed participation level at most age ranges, as shown below. The level of participation in RHIPA may be affected, at least in part, by economic conditions, cost of coverage, competition from alternative programs available to retirees, and the impact of healthcare reform legislation becoming effective. Since changes in these factors could change participation rates in RHIPA quickly, we recommend that PERS monitor RHIPA participation levels of future eligible retirees on a regular basis.

The data underlying this study showed a pattern wherein members would sometimes not appear until one or two years following retirement. This may be due to a combination of participant behavior and administrative delay. Because such lagged experience is not yet available for the final two years of our study, we included in our analysis an assumption as to the number of additional enrollments not yet reported for members who retired during 2019 or 2020. This assumption was based on the number of such records observed in the first two years of the study.



Retiree Healthcare Assumptions (*continued*)

RHIA

RHIA is a subsidized Medicare supplemental insurance program offered to all eligible Tier 1/Tier 2 retirees. Actual participation rates during the period of study were approximately 26 percent for healthy (i.e., non-disabled) retirees, compared to the current assumption of 32 percent. For disabled retirees, actual participation rates were approximately 12 percent compared to the current assumption of 20 percent. As shown in the table below, we recommend decreasing the healthy assumption to 27.5 percent and decreasing the disabled assumption to 15 percent.

The data underlying this study showed a pattern wherein members would sometimes not appear until one or two years following retirement (or reaching age 65 if already retired). This may be due to a combination of participant behavior and administrative delay. Because such lagged experience is not yet available for the final two years of our study, we included in our analysis an assumption as to the number of additional enrollments not yet reported for members who retired (or reached age 65 if already retired) during 2019 or 2020. This assumption was based on the number of such records observed in the first two years of the study.



5. Appendix

Data

Except where noted, the analysis in this study was based on data for the experience period from January 1, 2017 to December 31, 2020 as provided by the Oregon Public Employees Retirement System (PERS). PERS is solely responsible for the validity, accuracy and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

The member data was summarized according to the actual and potential member decrements for each year in the study. Actual and potential decrements were grouped according to age or service depending on the demographic assumption.

Assumption Tables

A complete listing of all the assumptions, methods and procedures presented to the Board for review on July 23, 2021 that are recommended to be used in the December 31, 2020 and December 31, 2021 actuarial valuations are summarized on the following pages.

Methods and Procedures

Actuarial cost method: Entry Age Normal

UAL amortization method: Level percent of combined Tier 1, Tier 2, and OPSRP payroll

UAL amortization period:

- Closed amortization from the first rate-setting valuation in which the experience is recognized
 - Tier 1/Tier 2 – 20 years
 - OPSRP – 16 years
 - RHIA/RHIPA – 10 years
 - 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. This base will continue to be amortized as a closed period, with 20 years remaining as of the December 31, 2021 rate-setting actuarial valuation.
- In general side accounts are aligned with a 20-year period from the most recent rate-setting valuation. Employers who make lump sum payments in accordance with the rules under OAR 459-009-0086(9) may select a shorter amortization period of either 6, 10, or 16 years since the most recent rate-setting valuation.
- When RHIA or RHIP is in an actuarial surplus position with a negative UAL, the actuarial surplus for that program is amortized over Tier 1/Tier 2 payroll using a rolling 20-year amortization basis. The resulting negative UAL Rate would be allowed to offset the Normal Cost Rate of the program, but not below a combined contribution rate of 0.0%.
- New transition liabilities are amortized over the 18-year period beginning when the employer joins the SLGRP.

Asset valuation method: Market value

Excluded reserves: Contingency Reserve, Capital Preservation Reserve. Rate Guarantee Reserve is excluded only when it is positive.

Contribution Rate Stabilization Method: The UAL Rate contribution rate component for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) is confined to a collared range based on the prior biennium’s collared UAL Rate contribution rate component (prior to consideration of side account offsets, SLGRP transition liability or surplus rates, or pre-SLGRP liability rate charges or offsets).

Collar Width: the rate pool’s new UAL Rate contribution rate component will generally not increase or decrease from the prior biennium’s collared UAL Rate contribution rate component by more than the following amount:

- Tier 1/Tier 2 SLGRP and Tier 1/Tier 2 School District Pool: 3% of payroll
- OPSRP: 1% of payroll
- Tier 1/Tier 2 rates for independent employers: greater of 4% of payroll or one-third of the difference between the collared and uncollared UAL Rate at the prior rate-setting valuation. In addition, the UAL Rate will not be allowed to be less than 0.00% of payroll for any Tier 1/Tier 2 independent employer with a funded status (excluding side accounts) less than 100%.

UAL Rate decrease restrictions: the UAL Rate for any rate pool will not be allowed to decrease if the pool’s funded status is 87% (excluding side accounts) or lower; the allowable decrease will phase in to the full collar width from 87% funded to 90% funded.

Liability Allocation for Actives with Several Employers: Allocate Actuarial Accrued Liability 10% (0% for police & fire) based on account balance with each employer and 90% (100% for police & fire) based on service with each employer.

Allocate Normal Cost to current employer.

Projected System Average Level of Member Redirect Contributions:

- Tier 1/Tier 2 – 2.40% of payroll
- OPSRP – 0.65% of payroll

Allocation of Benefits-In-Force (BIF) Reserve: The BIF is allocated to each rate pool in proportion to the retiree liability attributable to the rate pool.

Recommended Economic Assumptions

Inflation	2.40% or lower
Real wage growth	1.00%
Payroll growth	3.40% or lower
Investment return	We recommend the Board reduce the assumption by at least 0.20% from the current level of 7.20%, based on current data from capital market outlook models. The Board will select the assumption at its July 23, 2021 meeting.
Interest crediting	
▪ Regular account	Equal to investment return assumption
▪ Variable account	Equal to investment return assumption
RHIPA subsidy cost trend rates	
▪ 2021 trend rate	5.90%
▪ Ultimate trend rate	3.90%
▪ Year reaching ultimate trend	2074

Demographic Assumptions

Mortality

Healthy Retiree Mortality												
Age	Other General Service				Other General Service				Police & Fire			
	School District Male	Male	Male	Male	School District Female	Female	Female	Female	Police & Fire Male	Male	Male	Police & Fire Female
Year of Birth	Pub2010 Retiree, Blended 80% Teachers/20% General Employees, Generational w/Social Security Data Scale, 0 year setback				Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 1 year setback				Pub2010 Retiree, Public Safety, Generational w/Social Security Data Scale, 0 year setback			
Year of Birth	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960
50	0.001658	0.001484	0.001538	0.001380	0.002145	0.001920	0.000815	0.000730	0.002480	0.002220	0.001494	0.001340
51	0.001789	0.001600	0.003292	0.002947	0.002333	0.002087	0.000873	0.000781	0.002576	0.002304	0.001646	0.001474
52	0.001918	0.001718	0.003510	0.003139	0.002524	0.002259	0.000940	0.000841	0.002688	0.002406	0.001826	0.001633
53	0.002064	0.001850	0.003739	0.003347	0.002732	0.002448	0.000993	0.000890	0.002797	0.002506	0.002010	0.001799
54	0.002212	0.001987	0.003973	0.003560	0.002965	0.002663	0.001056	0.000948	0.002901	0.002605	0.002211	0.001981
55	0.002371	0.002109	0.004232	0.003800	0.003227	0.002901	0.002036	0.001830	0.003017	0.002712	0.002438	0.002189
56	0.003010	0.002709	0.004498	0.004043	0.003515	0.003163	0.002180	0.001962	0.003140	0.002825	0.002692	0.002420
57	0.003247	0.002922	0.004779	0.004300	0.003840	0.003455	0.002333	0.002099	0.003282	0.002954	0.002973	0.002675
58	0.003509	0.003151	0.005076	0.004588	0.004210	0.003780	0.002503	0.002248	0.003433	0.003083	0.003278	0.002950
59	0.003787	0.003394	0.005388	0.004838	0.004620	0.004141	0.002679	0.002401	0.003619	0.003244	0.003619	0.003250
60	0.004086	0.003654	0.005730	0.005135	0.005080	0.004543	0.002870	0.002567	0.003840	0.003434	0.003990	0.003576
61	0.004416	0.003941	0.006082	0.005439	0.005596	0.004995	0.003085	0.002753	0.004113	0.003671	0.004410	0.003945
62	0.004785	0.004258	0.006461	0.005767	0.006164	0.005486	0.003312	0.002947	0.004435	0.003947	0.004858	0.004336
63	0.005182	0.004598	0.006885	0.006127	0.006792	0.006025	0.003569	0.003167	0.004824	0.004279	0.005349	0.004760
64	0.005644	0.004992	0.007340	0.006512	0.007493	0.006627	0.003856	0.003411	0.005256	0.004648	0.005891	0.005226
65	0.006165	0.005442	0.007862	0.006954	0.008277	0.007306	0.004190	0.003699	0.005759	0.005084	0.006489	0.005740
66	0.006767	0.005961	0.008471	0.007478	0.009147	0.008058	0.004560	0.004017	0.006320	0.005568	0.007145	0.006306
67	0.007462	0.006566	0.009178	0.008085	0.010123	0.008908	0.004993	0.004394	0.006950	0.006116	0.007851	0.006916
68	0.008271	0.007286	0.010003	0.008803	0.011222	0.009885	0.005503	0.004847	0.007671	0.006757	0.008640	0.007603
69	0.009194	0.008107	0.010965	0.009659	0.012457	0.010984	0.006099	0.005378	0.008483	0.007480	0.009528	0.008393
70	0.010260	0.009066	0.012063	0.010637	0.013855	0.012242	0.006804	0.006012	0.009393	0.008299	0.010502	0.009261
71	0.011461	0.010137	0.013318	0.011767	0.015412	0.013632	0.007610	0.006731	0.010406	0.009204	0.011598	0.010248
72	0.012839	0.011379	0.014697	0.013000	0.017164	0.015212	0.008548	0.007575	0.011550	0.010236	0.012790	0.011313
73	0.014387	0.012764	0.016274	0.014424	0.019103	0.016948	0.009620	0.008535	0.012812	0.011367	0.014129	0.012522
74	0.016154	0.014361	0.018005	0.015973	0.021304	0.018939	0.010864	0.009658	0.014239	0.012658	0.015595	0.013835
75	0.018151	0.016168	0.019982	0.017763	0.023759	0.021164	0.012283	0.010941	0.015831	0.014102	0.017241	0.015327
76	0.020448	0.018270	0.022197	0.019773	0.026556	0.023727	0.013929	0.012446	0.017629	0.015751	0.019073	0.016989
77	0.022997	0.020589	0.024731	0.022097	0.029647	0.026542	0.015768	0.014117	0.019621	0.017566	0.021139	0.018887
78	0.025809	0.023130	0.027542	0.024658	0.033060	0.029628	0.017815	0.015966	0.021821	0.019566	0.023396	0.020946
79	0.028968	0.025987	0.030654	0.027472	0.036879	0.033085	0.020128	0.018057	0.024293	0.021794	0.025863	0.023178
80	0.032512	0.029196	0.034147	0.030633	0.041152	0.036954	0.022725	0.020407	0.027096	0.024332	0.028586	0.025645
81	0.036653	0.033015	0.038086	0.034202	0.046110	0.041533	0.025773	0.023214	0.030405	0.027387	0.031608	0.028385
82	0.041454	0.037490	0.042698	0.038460	0.051785	0.046834	0.029300	0.026498	0.034278	0.031000	0.035118	0.031632
83	0.047035	0.042753	0.048030	0.043437	0.058281	0.052975	0.033408	0.030367	0.038811	0.035278	0.039125	0.035384
84	0.053403	0.048787	0.054165	0.049234	0.065995	0.059925	0.038122	0.034827	0.044063	0.040254	0.043731	0.039750
85	0.060797	0.055878	0.061072	0.055793	0.073981	0.067997	0.043619	0.040091	0.050252	0.046187	0.048931	0.044701
86	0.069191	0.063979	0.068991	0.063410	0.083431	0.077147	0.049927	0.046166	0.057440	0.053114	0.054946	0.050501
87	0.078482	0.072938	0.077827	0.071965	0.093818	0.087190	0.056993	0.052967	0.065535	0.060905	0.061776	0.057123
88	0.089176	0.083379	0.087423	0.081247	0.105765	0.098888	0.065230	0.060989	0.074939	0.070067	0.069341	0.064442
89	0.100931	0.094845	0.098309	0.091917	0.118883	0.111715	0.074454	0.069965	0.085301	0.080157	0.078140	0.073060
90	0.114082	0.107744	0.110031	0.103396	0.133606	0.126183	0.084991	0.080269	0.096768	0.091391	0.087892	0.082592
91	0.128646	0.122111	0.122894	0.116066	0.149062	0.141490	0.097030	0.092101	0.119179	0.103632	0.098963	0.093465
92	0.144602	0.137947	0.136853	0.129901	0.164779	0.157196	0.110647	0.105555	0.122464	0.116828	0.111065	0.105423
93	0.161929	0.155255	0.151900	0.144910	0.180609	0.173165	0.125892	0.120703	0.136658	0.131026	0.124071	0.118361
94	0.179960	0.173237	0.168064	0.161137	0.195976	0.188655	0.142260	0.136946	0.151362	0.145708	0.137965	0.132278
95	0.199084	0.192418	0.184738	0.177836	0.211681	0.204593	0.160022	0.154663	0.167096	0.161501	0.152319	0.146628
96	0.218431	0.211753	0.202470	0.195690	0.227291	0.220342	0.178447	0.172992	0.183365	0.177760	0.167695	0.162080
97	0.236743	0.229736	0.220471	0.213731	0.242067	0.234903	0.196406	0.190593	0.199341	0.193441	0.183599	0.177986
98	0.255294	0.247987	0.237603	0.230571	0.257827	0.250447	0.214860	0.208710	0.216239	0.210049	0.199216	0.193320
99	0.272900	0.265088	0.255275	0.247968	0.273634	0.265801	0.232765	0.226102	0.233167	0.226493	0.215835	0.209657
100	0.291493	0.283433	0.272315	0.264520	0.291493	0.283433	0.251723	0.244763	0.251723	0.244763	0.232553	0.225896
101	0.310018	0.301748	0.290677	0.282640	0.310018	0.301748	0.270894	0.263668	0.270894	0.263668	0.251018	0.244078
102	0.328450	0.320009	0.309181	0.300933	0.328450	0.320009	0.290280	0.282820	0.290280	0.282820	0.270163	0.262956
103	0.345156	0.336286	0.327596	0.319177	0.345156	0.336286	0.308408	0.300483	0.308408	0.300483	0.289525	0.282085
104	0.362870	0.353900	0.344258	0.335412	0.362870	0.353900	0.327660	0.319560	0.327660	0.319560	0.307607	0.299702
105	0.380114	0.371089	0.361963	0.353015	0.380114	0.371089	0.346664	0.338433	0.346664	0.338433	0.326841	0.318761
106	0.396794	0.387762	0.379202	0.370198	0.396794	0.387762	0.365276	0.356961	0.365276	0.356961	0.345832	0.337621
107	0.412836	0.403843	0.395882	0.386870	0.412836	0.403843	0.383378	0.375027	0.383378	0.375027	0.364436	0.356140
108	0.426124	0.416842	0.411927	0.402954	0.426124	0.416842	0.398927	0.390237	0.398927	0.390237	0.382535	0.374202
109	0.440622	0.431456	0.425187	0.415925	0.440622	0.431456	0.415579	0.406934	0.415579	0.406934	0.398049	0.389378
110	0.452373	0.443407	0.436997	0.430550	0.452373	0.443407	0.431474	0.422922	0.431474	0.422922	0.414707	0.406080
111	0.453782	0.445233	0.438469	0.432020	0.453782	0.445233	0.446566	0.438154	0.446566	0.438154	0.430611	0.422076
112	0.455285	0.447156	0.440919	0.434387	0.455285	0.447156	0.455285	0.447156	0.455285	0.447156	0.445718	0.437321
113	0.454466	0.446351	0.439202	0.432651	0.454466	0.446351	0.454466	0.446351	0.454466	0.446351	0.445466	0.446351
114	0.456108	0.448413	0.441768	0.435118	0.456108	0.448413	0.456108	0.448413	0.456108	0.448413	0.453648	0.445548
115	0.457848	0.450575	0.443833	0.437083	0.457848	0.450575	0.457848	0.450575	0.457848	0.450575	0.455333	0.447651
116	0.457116	0.449854	0.443100	0.436350	0.457116	0.449854	0.457116	0.449854	0.457116	0.449854	0.457116	0.449854
117	0.456384	0.449134	0.442384	0.435634	0.456384	0.449134	0.456384	0.449134	0.456384	0.449134	0.456384	0.449134
118	0.455654	0.448416	0.441864	0.435364	0.455654	0.448416	0.455654	0.448416	0.455654	0.448416	0.455654	0.448416
119	0.454925	0.447698	0.441250	0.434748	0.454925	0.447698	0.454925	0.447698				

Demographic Assumptions (continued)

Age	Beneficiary Mortality				Disabled Retired Mortality					
	Male		Female		Police & Fire	Police & Fire	General Service	General Service		
	Male	Female	Male	Female	Male	Female	Male	Female		
	Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 1 year setback		Pub2010 Retiree, General Employees, Generational w/Social Security Data Scale, 0 year setback		Blended 50% Pub2010 Public Safety Disabled Retiree/50% Non-Safety Disabled Retiree, Generational w/Social Security Data Scale, 0 year setback		Disabled Retiree, Generational w/Social Security Data Scale, 2 year setforw ard		Disabled Retiree, Generational w/Social Security Data Scale, 1 year setforw ard	
Year of Birth	1950	1960	1950	1960	1950	1950	1950	1950	1950	1950
50	0.001538	0.001380	0.002480	0.002220	0.010935	0.009980	0.020306	0.017163		
51	0.003292	0.002947	0.002576	0.002304	0.011527	0.010310	0.021201	0.017531		
52	0.003510	0.003139	0.002688	0.002406	0.012089	0.010630	0.022015	0.017903		
53	0.003739	0.003347	0.002797	0.002506	0.012638	0.010959	0.022777	0.018243		
54	0.003973	0.003560	0.002901	0.002605	0.013163	0.011285	0.023449	0.018570		
55	0.004232	0.003800	0.003017	0.002712	0.013680	0.011618	0.024036	0.018860		
56	0.004498	0.004043	0.003140	0.002825	0.014176	0.011944	0.024585	0.019121		
57	0.004779	0.004300	0.003282	0.002954	0.014662	0.012267	0.025092	0.019355		
58	0.005076	0.004568	0.003433	0.003083	0.015158	0.012598	0.025595	0.019564		
59	0.005388	0.004838	0.003619	0.003244	0.015661	0.012926	0.026135	0.019780		
60	0.005730	0.005135	0.003840	0.003434	0.016190	0.013275	0.026770	0.020000		
61	0.006082	0.005439	0.004113	0.003671	0.016773	0.013644	0.027519	0.020272		
62	0.006461	0.005767	0.004435	0.003947	0.017424	0.014053	0.028375	0.020601		
63	0.006885	0.006127	0.004824	0.004279	0.018161	0.014509	0.029322	0.020993		
64	0.007340	0.006512	0.005256	0.004648	0.018975	0.015014	0.030351	0.021462		
65	0.007862	0.006954	0.005759	0.005084	0.019871	0.015582	0.031454	0.022019		
66	0.008471	0.007478	0.006320	0.005568	0.020838	0.016213	0.032658	0.022691		
67	0.009178	0.008085	0.006950	0.006116	0.021887	0.016935	0.033936	0.023508		
68	0.010003	0.008803	0.007671	0.006757	0.023040	0.017763	0.035333	0.024469		
69	0.010965	0.009659	0.008483	0.007480	0.024280	0.018694	0.036828	0.025603		
70	0.012063	0.010637	0.009393	0.008299	0.025659	0.019757	0.038500	0.026879		
71	0.013318	0.011767	0.010406	0.009204	0.027154	0.020921	0.040316	0.028362		
72	0.014697	0.013000	0.011550	0.010236	0.028865	0.022238	0.042373	0.030005		
73	0.016274	0.014424	0.012812	0.011367	0.030765	0.023674	0.044672	0.031905		
74	0.018005	0.015973	0.014239	0.012658	0.032961	0.025299	0.047293	0.034045		
75	0.019982	0.017763	0.015831	0.014102	0.035449	0.027096	0.050158	0.036502		
76	0.022197	0.019773	0.017629	0.015751	0.038293	0.029145	0.053261	0.039192		
77	0.024731	0.022097	0.019621	0.017566	0.041400	0.031379	0.056721	0.042123		
78	0.027542	0.024658	0.021821	0.019556	0.044722	0.033906	0.060544	0.045375		
79	0.030654	0.027472	0.024293	0.021794	0.048322	0.036892	0.065006	0.048965		
80	0.034147	0.030633	0.027096	0.024332	0.052199	0.040196	0.070054	0.053142		
81	0.038086	0.034202	0.030405	0.027387	0.056636	0.044038	0.075772	0.057896		
82	0.042698	0.038460	0.034278	0.031000	0.061637	0.048418	0.082045	0.063315		
83	0.048030	0.043437	0.038811	0.035278	0.067342	0.053432	0.089077	0.069334		
84	0.054165	0.049234	0.044063	0.040254	0.073725	0.059043	0.096772	0.076209		
85	0.061072	0.055793	0.050252	0.046187	0.081100	0.065490	0.104953	0.083561		
86	0.068991	0.063410	0.057440	0.053114	0.089350	0.072585	0.114216	0.091036		
87	0.077827	0.071965	0.065535	0.060905	0.098622	0.080111	0.125638	0.099064		
88	0.087423	0.081247	0.074939	0.070067	0.109228	0.088534	0.138491	0.107182		
89	0.098309	0.091917	0.085301	0.080157	0.121484	0.097479	0.152000	0.115757		
90	0.110031	0.103396	0.096768	0.091391	0.135261	0.107323	0.166052	0.125006		
91	0.122894	0.116066	0.109179	0.103632	0.149743	0.118001	0.180697	0.135105		
92	0.136853	0.129901	0.122464	0.116828	0.164779	0.129564	0.195456	0.146306		
93	0.151900	0.144910	0.136658	0.131026	0.180609	0.142119	0.211064	0.158351		
94	0.168064	0.161137	0.151362	0.145708	0.195976	0.155325	0.226988	0.171879		
95	0.184738	0.177836	0.167096	0.161501	0.211681	0.169781	0.242365	0.186438		
96	0.202470	0.195690	0.183365	0.177760	0.227291	0.185015	0.258716	0.201431		
97	0.220471	0.213731	0.199341	0.193441	0.242067	0.200321	0.275039	0.217578		
98	0.237603	0.230571	0.216239	0.210049	0.257827	0.216705	0.293132	0.234042		
99	0.255275	0.247968	0.233167	0.226493	0.273634	0.233296	0.311698	0.252430		
100	0.272315	0.264520	0.251723	0.244763	0.291493	0.251723	0.330164	0.271627		
101	0.290677	0.282640	0.270894	0.263668	0.310018	0.270894	0.346957	0.291037		
102	0.309181	0.300933	0.290280	0.282820	0.328450	0.290280	0.364692	0.309212		
103	0.327596	0.319177	0.308408	0.300483	0.345156	0.308408	0.381945	0.328481		
104	0.344258	0.335412	0.327660	0.319560	0.362870	0.327660	0.398626	0.347498		
105	0.361963	0.353015	0.346664	0.338433	0.380114	0.346664	0.414658	0.366118		
106	0.379202	0.370198	0.365276	0.356961	0.396794	0.365276	0.428006	0.384224		
107	0.395882	0.386870	0.383378	0.375027	0.412836	0.383378	0.442479	0.399807		
108	0.411927	0.402954	0.398927	0.390237	0.426124	0.398927	0.454188	0.416454		
109	0.425187	0.415925	0.415579	0.406934	0.440622	0.415579	0.455511	0.432338		
110	0.439697	0.430550	0.431474	0.422922	0.452373	0.431474	0.456929	0.447417		
111	0.451469	0.442520	0.446566	0.438154	0.453782	0.446566	0.456106	0.456106		
112	0.452919	0.444387	0.455285	0.447156	0.455285	0.455285	0.457663	0.455285		
113	0.454466	0.446351	0.454466	0.446351	0.454466	0.454466	0.459317	0.456885		
114	0.453648	0.445548	0.456108	0.448413	0.456108	0.456108	0.458582	0.458582		
115	0.455333	0.447651	0.457848	0.450575	0.457848	0.457848	0.457848	0.457848		
116	0.457116	0.449854	0.457116	0.449854	0.457116	0.457116	0.457116	0.457116		
117	0.456384	0.449134	0.456384	0.449134	0.456384	0.456384	0.456384	0.456384		
118	0.455654	0.448416	0.455654	0.448416	0.455654	0.455654	1.000000	0.455654		
119	0.454925	0.447698	0.454925	0.447698	0.454925	0.454925	1.000000	1.000000		
120	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000		

This work product was prepared solely for Oregon Public Employees Retirement System for the purposes stated herein, and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.



Demographic Assumptions (continued)

Non-Annuitant Mortality												
Age	School District		Other General		Police & Fire		School District		Other General		Police & Fire	
	Male		Service Male		Male		Female		Service Female		Female	
Year of Birth	125% of Pub2010 Employee, Blended 80% Teachers/20% General Employees, Generational w /Social Security Data Scale, 0 year setback		115% of Pub2010 Employee, General Employees, Generational w /Social Security Data Scale, 1 year setback		100% of Pub2010 Employee, Public Safety, Generational w /Social Security Data Scale, 0 year setback		100% Pub2010 Employee, Teachers, Generational w /Social Security Data Scale, 0 year setback		125% of Pub2010 Employee, General Employees, Generational w /Social Security Data Scale, 0 year setback		100% of Pub2010 Employee, Public Safety, Generational w /Social Security Data Scale, 1 year setback	
	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960
30	0.000336	0.000327	0.000420	0.000410	0.000445	0.000433	0.000152	0.000148	0.000203	0.000198	0.000269	0.000262
31	0.000365	0.000355	0.000448	0.000436	0.000458	0.000445	0.000164	0.000159	0.000218	0.000212	0.000292	0.000284
32	0.000384	0.000371	0.000475	0.000461	0.000472	0.000456	0.000176	0.000170	0.000247	0.000239	0.000305	0.000296
33	0.000414	0.000399	0.000503	0.000487	0.000486	0.000469	0.000188	0.000181	0.000263	0.000253	0.000328	0.000317
34	0.000434	0.000416	0.000532	0.000513	0.000501	0.000481	0.000211	0.000203	0.000292	0.000280	0.000352	0.000340
35	0.000467	0.000447	0.000561	0.000538	0.000526	0.000503	0.000224	0.000214	0.000322	0.000308	0.000377	0.000362
36	0.000502	0.000477	0.000602	0.000576	0.000553	0.000526	0.000248	0.000236	0.000352	0.000335	0.000401	0.000383
37	0.000538	0.000508	0.000645	0.000614	0.000569	0.000538	0.000273	0.000258	0.000398	0.000377	0.000426	0.000406
38	0.000590	0.000554	0.000690	0.000652	0.000610	0.000572	0.000299	0.000281	0.000432	0.000405	0.000464	0.000439
39	0.000631	0.000587	0.000750	0.000703	0.000652	0.000606	0.000338	0.000314	0.000480	0.000447	0.000492	0.000461
40	0.000688	0.000635	0.000811	0.000754	0.000694	0.000640	0.000365	0.000336	0.000529	0.000488	0.000532	0.000494
41	0.000754	0.000690	0.000886	0.000817	0.000733	0.000671	0.000402	0.000368	0.000591	0.000541	0.000572	0.000527
42	0.000819	0.000746	0.000957	0.000876	0.000793	0.000722	0.000438	0.000399	0.000636	0.000579	0.000610	0.000558
43	0.000894	0.000811	0.001038	0.000945	0.000838	0.000760	0.000484	0.000439	0.000693	0.000629	0.000656	0.000598
44	0.000969	0.000876	0.001116	0.001012	0.000893	0.000807	0.000517	0.000467	0.000749	0.000677	0.000690	0.000626
45	0.001067	0.000963	0.001203	0.001088	0.000956	0.000863	0.000560	0.000505	0.000816	0.000737	0.000733	0.000662
46	0.001166	0.001051	0.001301	0.001174	0.001019	0.000918	0.000614	0.000553	0.000883	0.000795	0.000773	0.000698
47	0.001275	0.001146	0.001410	0.001270	0.001091	0.000981	0.000666	0.000599	0.000948	0.000852	0.000813	0.000733
48	0.001397	0.001254	0.001516	0.001363	0.001161	0.001042	0.000717	0.000644	0.001010	0.000907	0.000864	0.000776
49	0.001516	0.001360	0.001644	0.001476	0.001251	0.001122	0.000766	0.000687	0.001085	0.000973	0.000900	0.000809
50	0.001656	0.001483	0.001769	0.001587	0.001340	0.001200	0.000815	0.000730	0.001159	0.001038	0.000947	0.000850
51	0.001797	0.001607	0.001893	0.001695	0.001426	0.001276	0.000873	0.000781	0.001244	0.001113	0.001005	0.000900
52	0.001931	0.001729	0.002037	0.001822	0.001530	0.001369	0.000940	0.000841	0.001325	0.001186	0.001061	0.000949
53	0.002087	0.001870	0.002175	0.001947	0.001630	0.001461	0.000993	0.000890	0.001417	0.001270	0.001113	0.000996
54	0.002237	0.002009	0.002321	0.002080	0.001728	0.001552	0.001056	0.000948	0.001507	0.001353	0.001164	0.001043
55	0.002392	0.002150	0.002464	0.002212	0.001846	0.001659	0.001129	0.001014	0.001622	0.001458	0.001224	0.001099
56	0.002566	0.002309	0.002628	0.002363	0.001982	0.001783	0.001200	0.001079	0.001734	0.001560	0.001284	0.001154
57	0.002753	0.002478	0.002801	0.002521	0.002116	0.001904	0.001280	0.001152	0.001858	0.001672	0.001352	0.001217
58	0.002961	0.002659	0.002995	0.002695	0.002278	0.002046	0.001379	0.001239	0.001992	0.001789	0.001430	0.001287
59	0.003185	0.002854	0.003197	0.002871	0.002457	0.002202	0.001486	0.001332	0.002148	0.001925	0.001496	0.001343
60	0.003438	0.003074	0.003404	0.003051	0.002640	0.002361	0.001610	0.001440	0.002325	0.002079	0.001580	0.001416
61	0.003727	0.003327	0.003628	0.003245	0.002847	0.002542	0.001750	0.001562	0.002509	0.002239	0.001661	0.001486
62	0.004042	0.003597	0.003867	0.003452	0.003077	0.002738	0.001915	0.001704	0.002711	0.002412	0.001740	0.001553
63	0.004382	0.003888	0.004120	0.003666	0.003319	0.002944	0.002093	0.001857	0.002942	0.002610	0.001835	0.001633
64	0.004763	0.004213	0.004396	0.003900	0.003570	0.003158	0.002304	0.002038	0.003201	0.002832	0.001926	0.001708
65	0.005186	0.004578	0.004683	0.004142	0.003852	0.003400	0.002537	0.002239	0.003476	0.003068	0.002022	0.001788
66	0.005630	0.004959	0.004994	0.004408	0.004309	0.003796	0.002799	0.002465	0.003788	0.003337	0.002116	0.001867
67	0.006117	0.005383	0.005325	0.004691	0.004810	0.004233	0.003091	0.002720	0.004138	0.003641	0.002397	0.002112
68	0.006645	0.005854	0.005689	0.005007	0.005394	0.004752	0.003433	0.003025	0.004518	0.003980	0.002708	0.002383
69	0.007220	0.006366	0.006094	0.005369	0.006036	0.005323	0.003831	0.003378	0.004934	0.004350	0.003078	0.002711
70	0.007818	0.006908	0.006551	0.005777	0.006768	0.005980	0.004285	0.003787	0.005401	0.004772	0.003492	0.003079
71	0.008438	0.007463	0.007056	0.006234	0.007584	0.006708	0.004805	0.004250	0.005908	0.005226	0.003962	0.003501
72	0.009103	0.008068	0.007612	0.006733	0.008513	0.007545	0.005407	0.004792	0.006467	0.005731	0.004496	0.003977
73	0.009798	0.008692	0.008227	0.007292	0.009543	0.008466	0.006077	0.005391	0.007072	0.006274	0.005111	0.004530
74	0.010544	0.009373	0.008899	0.007895	0.010711	0.009522	0.006861	0.006099	0.007749	0.006889	0.005801	0.005147
75	0.011358	0.010117	0.009649	0.008577	0.012039	0.010724	0.007743	0.006897	0.008491	0.007564	0.006596	0.005864
76	0.012810	0.011446	0.010475	0.009330	0.013545	0.012102	0.008819	0.007879	0.009322	0.008329	0.007504	0.006685
77	0.014440	0.012928	0.011395	0.010181	0.015229	0.013635	0.010034	0.008983	0.010212	0.009143	0.008555	0.007643
78	0.016263	0.014575	0.012392	0.011095	0.017101	0.015326	0.011403	0.010219	0.011186	0.010024	0.009744	0.008723
79	0.018326	0.016440	0.013447	0.012051	0.019209	0.017232	0.012952	0.011619	0.012244	0.010984	0.011084	0.009933
80	0.020664	0.018557	0.014605	0.013102	0.021572	0.019372	0.014725	0.013223	0.013407	0.012039	0.012603	0.011306

Demographic Assumptions *(continued)*

Mortality Improvement Scale

Unisex Social Security Data Mortality Projection Scale					
Based on 60-year average of experience through 2017					
Age	Improvement Rate	Age	Improvement Rate	Age	Improvement Rate
15	1.41%	50	1.10%	85	0.84%
16	1.32%	51	1.11%	86	0.78%
17	1.21%	52	1.10%	87	0.73%
18	1.08%	53	1.09%	88	0.67%
19	0.94%	54	1.07%	89	0.62%
20	0.81%	55	1.06%	90	0.57%
21	0.71%	56	1.05%	91	0.52%
22	0.62%	57	1.05%	92	0.47%
23	0.54%	58	1.07%	93	0.42%
24	0.46%	59	1.09%	94	0.38%
25	0.37%	60	1.11%	95	0.34%
26	0.30%	61	1.13%	96	0.31%
27	0.25%	62	1.16%	97	0.30%
28	0.23%	63	1.19%	98	0.29%
29	0.24%	64	1.22%	99	0.29%
30	0.27%	65	1.24%	100	0.28%
31	0.30%	66	1.26%	101	0.27%
32	0.33%	67	1.27%	102	0.26%
33	0.37%	68	1.26%	103	0.26%
34	0.41%	69	1.25%	104	0.25%
35	0.45%	70	1.23%	105	0.24%
36	0.50%	71	1.22%	106	0.23%
37	0.56%	72	1.20%	107	0.22%
38	0.64%	73	1.19%	108	0.22%
39	0.72%	74	1.17%	109	0.21%
40	0.81%	75	1.15%	110	0.20%
41	0.88%	76	1.12%	111	0.19%
42	0.93%	77	1.10%	112	0.18%
43	0.97%	78	1.09%	113	0.18%
44	1.00%	79	1.08%	114	0.17%
45	1.02%	80	1.07%	115	0.16%
46	1.04%	81	1.04%	116	0.16%
47	1.06%	82	1.00%	117	0.16%
48	1.07%	83	0.95%	118	0.16%
49	1.08%	84	0.90%	119	0.16%

Demographic Assumptions *(continued)*

Retirement Assumptions

Retirement from Active Status *(Tier 1/Tier 2)*

Age	Police & Fire			General Service / School Districts						Judges	
	<13 Years	13 - 24	25+ Years	General Service			School Districts				
				< 15 years	15-29 Years	30+ Years	< 15 years	15-29 Years	30+ Years		
< 50						15.0%				25.0%	
50	1.5%	3.0%	32.0%			15.0%				25.0%	
51	1.5%	3.0%	27.0%			15.0%				25.0%	
52	1.5%	3.0%	27.0%			15.0%				25.0%	
53	1.5%	3.0%	27.0%			15.0%				25.0%	
54	1.5%	3.5%	27.0%			15.0%				25.0%	
55	3.0%	15.5%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%		25.0%	
56	3.0%	10.0%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%		25.0%	
57	3.0%	10.0%	27.0%	1.5%	2.5%	15.0%	1.5%	3.5%		25.0%	
58	6.0%	10.0%	27.0%	1.5%	9.0%	21.0%	1.5%	11.0%		27.5%	
59	6.0%	10.0%	27.0%	3.5%	9.0%	21.0%	4.5%	11.0%		27.5%	
60	6.0%	12.0%	27.0%	6.0%	11.0%	21.0%	6.5%	12.5%		27.5%	12.0%
61	6.0%	14.0%	27.0%	6.0%	11.0%	21.0%	6.5%	12.5%		27.5%	12.0%
62	15.0%	25.0%	38.0%	13.0%	19.5%	28.5%	15.0%	21.0%		34.0%	12.0%
63	15.0%	15.0%	31.0%	11.5%	16.5%	23.0%	13.0%	19.5%		27.5%	12.0%
64	15.0%	15.0%	31.0%	12.5%	16.5%	23.0%	13.0%	19.5%		27.5%	12.0%
65	40.0%	40.0%	50.0%	19.5%	28.0%	37.5%	25.5%	33.5%		45.0%	12.0%
66	40.0%	40.0%	50.0%	27.5%	36.0%	40.5%	23.0%	36.5%		45.0%	12.0%
67	40.0%	40.0%	50.0%	22.5%	26.5%	34.0%	21.0%	34.5%		38.0%	20.0%
68	40.0%	40.0%	50.0%	19.5%	26.5%	28.5%	21.0%	28.0%		28.5%	20.0%
69	40.0%	40.0%	50.0%	19.5%	26.5%	28.5%	21.0%	28.0%		28.5%	20.0%
70	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%		28.5%	30.0%
71	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%		28.5%	30.0%
72	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%		28.5%	30.0%
73	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%		28.5%	30.0%
74	100.0%	100.0%	100.0%	25.0%	28.5%	28.5%	21.0%	28.0%		28.5%	30.0%
75 +	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%	100.0%

Lump Sum Option at Retirement

Partial Lump Sum	2%
Total Lump Sum	0%

Purchase of Credited Service at Retirement

Money Match Retirements	0%
Non-Money Match Retirements	75%

Oregon Residency Status

For purposes of determining eligibility for SB 656/HB 3349 benefit adjustments, 85% of retirees are assumed to remain Oregon residents after retirement.

Demographic Assumptions (continued)

Retirement from Active Status (OPSRP)

Age	Police & Fire			General Service / School Districts					
	<13 Years	13 - 24	25+ Years	General Service			School Districts		
				< 15 years	15-29 Years	30+ Years	< 15 years	15-29 Years	30+ Years
50	0.5%	1.5%	5.5%						
51	0.5%	1.5%	5.5%						
52	0.5%	1.5%	5.5%						
53	0.5%	1.5%	27.0%						
54	0.5%	1.5%	27.0%						
55	2.0%	5.0%	27.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
56	2.0%	5.0%	27.0%	1.0%	2.5%	5.0%	0.5%	2.5%	5.0%
57	2.0%	5.0%	27.0%	1.0%	2.5%	7.5%	1.0%	2.5%	7.5%
58	5.0%	5.0%	27.0%	1.5%	3.0%	30.0%	1.5%	3.0%	30.0%
59	5.0%	5.0%	27.0%	2.0%	3.0%	25.0%	1.5%	3.0%	25.0%
60	5.0%	15.0%	27.0%	2.5%	3.8%	20.0%	2.5%	3.8%	20.0%
61	5.0%	8.5%	27.0%	2.5%	5.0%	20.0%	2.5%	5.0%	20.0%
62	10.0%	25.0%	38.0%	6.5%	12.0%	30.0%	6.0%	12.0%	30.0%
63	7.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
64	7.0%	15.0%	31.0%	6.5%	10.0%	20.0%	6.0%	10.0%	20.0%
65	7.0%	35.0%	40.0%	15.5%	35.0%	20.0%	12.5%	35.0%	20.0%
66	7.0%	35.0%	40.0%	18.5%	33.0%	20.0%	12.5%	33.0%	20.0%
67	7.0%	35.0%	40.0%	17.0%	22.0%	30.0%	11.0%	22.0%	30.0%
68	7.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
69	7.0%	35.0%	40.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
70	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
71	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
72	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
73	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
74	100.0%	100.0%	100.0%	14.0%	20.0%	25.0%	9.0%	20.0%	25.0%
75 +	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Disability Assumptions

Age	Duty Disability		
	Police & Fire	General Service	Ordinary Disability
20	0.0060%	0.0002%	0.0075%
25	0.0086%	0.0003%	0.0108%
30	0.0128%	0.0004%	0.0160%
35	0.0196%	0.0007%	0.0245%
40	0.0316%	0.0011%	0.0395%
45	0.0518%	0.0018%	0.0648%
50	0.0896%	0.0031%	0.1120%
55	0.1690%	0.0059%	0.1600%
60	-	0.0084%	0.1600%
65	-	-	-

Demographic Assumptions *(continued)*

Termination Assumptions

Duration	School District	School District	General	General	Police & Fire
	Male	Female	Service Male	Service Female	
0	16.63%	13.50%	15.00%	15.00%	10.00%
1	14.25%	12.50%	12.50%	14.00%	5.97%
2	11.50%	10.50%	10.46%	11.50%	5.02%
3	9.50%	9.13%	9.23%	8.74%	4.22%
4	7.93%	8.07%	8.15%	7.95%	3.54%
5	6.86%	7.13%	7.19%	7.23%	3.31%
6	5.93%	6.31%	6.35%	6.57%	3.06%
7	5.12%	5.58%	5.60%	5.98%	2.83%
8	4.43%	4.93%	4.94%	5.44%	2.61%
9	3.82%	4.36%	4.42%	5.09%	2.41%
10	3.31%	3.85%	4.13%	4.77%	2.23%
11	3.04%	3.45%	3.85%	4.47%	2.06%
12	2.84%	3.24%	3.60%	4.18%	1.90%
13	2.65%	3.04%	3.36%	3.92%	1.76%
14	2.47%	2.85%	3.13%	3.67%	1.63%
15	2.30%	2.68%	2.93%	3.43%	1.50%
16	2.15%	2.51%	2.73%	3.22%	1.39%
17	2.00%	2.36%	2.55%	3.01%	1.28%
18	1.87%	2.21%	2.38%	2.82%	1.19%
19	1.74%	2.08%	2.22%	2.64%	1.10%
20	1.62%	1.95%	2.08%	2.47%	1.01%
21	1.52%	1.83%	1.94%	2.32%	0.94%
22	1.41%	1.72%	1.81%	2.17%	0.87%
23	1.32%	1.61%	1.69%	2.03%	0.80%
24	1.23%	1.50%	1.58%	1.90%	0.80%
25	1.20%	1.50%	1.47%	1.78%	0.80%
26	1.20%	1.50%	1.40%	1.67%	0.80%
27	1.20%	1.50%	1.40%	1.56%	0.80%
28	1.20%	1.50%	1.40%	1.46%	0.80%
29	1.20%	1.50%	1.40%	1.40%	0.80%
30 +	1.20%	1.50%	1.40%	1.40%	0.80%

Demographic Assumptions *(continued)*

Merit Salary Increase Assumptions

Duration	School	Other General	
	District	Service	Police & Fire
0	4.15%	4.06%	5.13%
1	3.92%	3.73%	4.59%
2	3.69%	3.42%	4.10%
3	3.46%	3.13%	3.64%
4	3.22%	2.85%	3.24%
5	2.98%	2.60%	2.87%
6	2.74%	2.35%	2.55%
7	2.50%	2.12%	2.25%
8	2.26%	1.91%	1.99%
9	2.03%	1.71%	1.77%
10	1.79%	1.52%	1.58%
11	1.56%	1.35%	1.41%
12	1.34%	1.19%	1.27%
13	1.13%	1.05%	1.15%
14	0.92%	0.92%	1.06%
15	0.72%	0.79%	0.98%
16	0.53%	0.69%	0.92%
17	0.35%	0.59%	0.87%
18	0.18%	0.51%	0.83%
19	0.02%	0.43%	0.80%
20	-0.11%	0.36%	0.79%
21	-0.24%	0.31%	0.77%
22	-0.35%	0.27%	0.76%
23	-0.43%	0.23%	0.75%
24	-0.50%	0.21%	0.74%
25	-0.55%	0.19%	0.72%
26	-0.58%	0.18%	0.70%
27	-0.59%	0.18%	0.66%
28	-0.59%	0.18%	0.62%
29	-0.59%	0.18%	0.57%
30 +	-0.59%	0.18%	0.50%

Demographic Assumptions *(continued)*

Unused Sick Leave Adjustment

Actives	
• State General Service Male	8.25%
• State General Service Female	5.00%
• School District Male	9.50%
• School District Female	6.50%
• Local General Service Male	7.25%
• Local General Service Female	4.50%
• State Police & Fire	4.25%
• Local Police & Fire	7.50%
Dormants	5.00%

Unused Vacation Cash Out Adjustment

Tier 1	
• State General Service	2.50%
• School District	0.25%
• Local General Service	3.50%
• State Police & Fire	2.75%
• Local Police & Fire	4.75%
Tier 2	0.00%

Retiree Healthcare Assumptions

Retiree Healthcare Participation

RHIPA	
• 8 – 9 years of service	10.0%
• 10 – 14 years of service	10.0%
• 15 – 19 years of service	11.0%
• 20 – 24 years of service	14.0%
• 25 – 29 years of service	22.0%
• 30+ years of service	27.0%
RHIA	
• Healthy Retired	27.5%
• Disabled Retired	15.0%

RHIPA Subsidy Cost Trend Rates

Year	Rate
2021	5.90%
2022	5.50%
2023	5.10%
2024	5.00%
2025-2026	4.90%
2027	4.80%
2028-2036	4.70%
2037-2045	4.80%
2046-2049	4.90%
2050-2051	4.80%
2052-2060	4.70%
2061-2064	4.60%
2065-2066	4.50%
2067	4.40%
2068	4.30%
2069-2070	4.20%
2071	4.10%
2072-2073	4.00%
2074+	3.90%

Action and Discussion Items

1. Legislative Session Review and 2021-23 Budget Update
 - a. Session Overview and 2022 Preview
 - b. 2021-2023 Budget
2. SB 1049 Implementation Update
3. Valuation Methods and Assumptions Including Assumed Rate of Return
4. Notice of Assumed Rate OAR



Oregon

Kate Brown, Governor

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July 23, 2021

TO: Members of the PERS Board
FROM: Stephanie Vaughn, Manager, Policy Analysis and Compliance Section
SUBJECT: Notice of Rulemaking for Assumed Rate Rule:
OAR 459-007-0007, *Assumed Rate*

OVERVIEW

- Action: None. This is notice that staff will begin rulemaking.
- Reason: Review and establish the assumed rate beginning January 1, 2022.
- Policy Issue: No policy issues have been identified at this time.

BACKGROUND

The PERS Board reviews the assumed rate in odd-numbered years as part of the Board's adoption of actuarial methods and assumptions. The rate is then adopted in an administrative rule; even though the actual assumed rate will not be determined until the PERS Board's October 1, 2021, meeting, we have to open the relevant rule at this time to allow for adoption at that subsequent meeting. For now, these rule modifications include a blank space; the assumed rate will be filled in for public notice once the Board decides on a preliminary rate in this meeting.

The rule specifies that the new assumed rate will be effective for PERS transactions with an effective date of January 1, 2022, consistent with this Board's policy decision from 2013 that changes to the assumed rate will be effective January 1 following the Board's adoption of the new rate, giving staff ample time to perform the necessary preparations and communicate with members and employers. A January 1 effective date also provides equitable treatment to all members who retire in a year that a change is adopted, no matter which month they retire. The new assumed rate will be aligned with the new actuarial equivalency factors (AEFs), which will allow for a clear effective date for all transactions that involve calculations using both the latest year-to-date rate and AEF components.

PUBLIC COMMENT AND HEARING TESTIMONY

No rulemaking hearing will be held because the PERS building is closed to the public. The public comment period ends August 24, 2021, at 5:00 p.m.

LEGAL REVIEW

The attached draft rule was submitted to the Department of Justice for legal review and any comments or changes will be incorporated before the rule is presented for adoption.

IMPACT

Mandatory: Yes, the assumed rate determined by the Board must be adopted by rule and clearly describe the effective date of the assumed rate change on PERS transactions.

Benefit: The proposed rule benefits members, employers, and staff by setting forth the assumed rate and a clear effective date for implementing a change in the rate.

Cost: There are no discrete costs directly attributable to specifying the assumed rate in rule.

RULEMAKING TIMELINE

July 22, 2021	Staff began the rulemaking process by filing Notice of Rulemaking with the Secretary of State.
July 23, 2021	PERS Board notified that staff began the rulemaking process.
August 2, 2021	Secretary of State publishes the Notice in the Oregon Administrative Rules Database. Notice is sent to employers, legislators, and interested parties. Public comment period begins.
August 24, 2021	Public comment period ends at 5:00 p.m.
October 1, 2021	Staff will propose adopting the rule modifications, including any changes resulting from public comment or reviews by staff or legal counsel.

BOARD ACTION

We are seeking a decision by the Board setting a preliminary assumed rate for the purpose of notice. The preliminary rate set by the Board will be published in the official notice of the rule.

NEXT STEPS

The rule is scheduled to be brought before the PERS Board for adoption at the October 1, 2021, Board meeting.

C.4. Attachment 1 – 459-007-0007, *Assumed Rate*

**OREGON ADMINISTRATIVE RULE
PUBLIC EMPLOYEES RETIREMENT BOARD
CHAPTER 459
DIVISION 007 – EARNINGS AND INTEREST DISTRIBUTION**

1 **459-007-0007**

2 **Assumed Rate**

3 (1) The Board will review the assumed rate in odd-numbered years as part of the
4 Board's review and adoption of actuarial assumptions and methods.

5 (2) The Board may adopt a change in the assumed rate at any time. A change in the
6 assumed rate is effective the first of the year following the Board's adoption of the change.

7 (3) The assumed rate is set at ~~[7.20]~~ ____ percent, effective on January 1, ~~[2020]~~ 2022.

8 Stat. Auth.: ORS 238.650 & 238A.450

9 Stats. Implemented: ORS Chapters 238 & 238A

Members of the PERS Board:

In my [written testimony](#) to the board on June 4, 2021, I urged you to take advantage of a rare confluence of good news and substantially reduce the assumed rate of return.

I contended an historically high valuation of PERS investments and a state projection of \$1 billion in additional revenue over the next biennium allow you to cut the assumed rate substantially with a minimum of pain to public employers.

I am back today to ask you to seize this opportunity and go beyond your actuaries' minimum recommendations in cutting the assumed rate.

In my [op-ed](#) published in The Oregonian/OregonLive on July 11, I showed how your policy of amortizing the unfunded liability over a period of years is hamstrung when the assumed rate is substantially higher than the growth of PERS investments.

In a balanced system, the recent stellar investment growth would have translated to a sharply lower unfunded liability. But on March 9, Milliman's estimate of the unfunded liability was \$24.3 billion, little changed over the last two years. Why so little change?

When the assumed rate persistently exceeds the growth of PERS investments, the amortization policy is applied to an unfunded liability figure that doesn't match the real world. And the mismatch between a realistic unfunded liability figure and the mythical one reported by Milliman is not small.

If we extrapolate Milliman's preliminary unfunded liability calculations at various assumed rates (March 29 board packet, page 128), a much more realistic figure for the current unfunded liability comes into focus. Using Milliman's projections of future returns of 6.27%, we see the unfunded liability is actually about \$35 billion.

So it should be no surprise that PERS investments can grow an astonishing \$17.4 billion over the last two and a half years yet the unfunded liability barely moves. The system is seriously out of balance, and it should now be crystal clear to you that unless you act to increase employer contributions, a burdensome and dangerous unfunded liability will be with us for decades to come.

But there is another policy that misbehaves when the assumed rate is persistently too high: your policy for collaring employer contribution rates.

As you know, the rate collar was conceived to be a smoothing influence on employer contribution changes from period to period. It would prevent a large upward spike in contributions when PERS investments drop significantly and, equally importantly, prevent a dramatic *decrease* in contributions when investments post a large gain. Put another way, when investment returns increase substantially, your calculations should produce a large decrease in contributions. The collar then kicks in and prevents contributions from falling too far. It puts money back in the bank, so to speak, for the day when investments decline.

Over the nearly 12 years of rising values of PERS investments, the rate collar has never worked that way. The closest it has come is right now, where uncollared employer contributions and collared contributions are virtually identical. But it took that historic surge in PERS investments to get even that far. This should be a

huge red flag to you. With investment returns like these, your calculations should have produced a substantial *reduction* in employer contributions.

The rate collar has become the evil twin of the original policy. Unlike the amortization policy, which is merely ineffective, the rate collar has actually made things a lot worse in recent years.

The system's calculations have produced employer contribution increases year after year on rising investments because it is mathematically attempting to correct its serious imbalance. It is literally screaming at you that significant contribution increases need to happen. The evil twin collar has instead allowed you to keep contribution increases to an unsustainable minimum under the guise of "just following policy". And you have done so for years.

It should be unconscionable to you to go on setting contribution rates using policies that only serve to exacerbate the very problems they were designed to correct. You need to accept that employer contributions must rise to the point where your policies at least begin to gain traction.

I note that in today's meeting you are considering modifications to the rate collar policy that appear to make it a little less evil. I applaud this effort. However, it remains to be seen if this change will result in the increase in employer contributions that is needed to make a significant difference in the health of the system.

Today you can choose how those contributions should rise over the next few years. You can choose a chaotic, head-in-the-sand path by continuing to hold contributions dangerously low and hoping for the best. On this path, when the next big drop in PERS investments occurs, the unfunded liability could spike to such a level that not even the evil twin collar will be able moderate the increases. Your actuaries would not permit it. To keep the system solvent, they will insist on immediate and painfully large increases in contributions no matter what the collar says.

Or you can set the system on a path of measured contribution increases over the next few years until your policies once again can work as intended and hope you are not too late to avert a crisis.

It is time finally to right the badly-listing ship that is PERS and set the system on a sustainable course for the future.

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