

December 2021

Nehalem Bay Wastewater Agency/2724
Oregon Public Employees Retirement System

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2020. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This valuation is advisory and does not affect employer contribution rates. Employer contribution rates effective July 1, 2023 through June 30, 2025 will be calculated in the December 31, 2021 actuarial valuation.

This report reflects the System's benefit provisions in effect as of December 31, 2020, including Senate Bill 111 and House Bill 2906 which were enacted in June 2021. The full development of the valuation results for the Oregon Public Service Retirement Plan (OPSRP) and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact actuarial.services@pers.oregon.gov.

Contents of Report

The executive summary provides the basic information you need including:

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

The remainder of the report provides additional information including:

- Side account balances, transactions, and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

December 2021
Nehalem Bay Wastewater Agency/2724

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

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

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in October 2021.

The actuarial computations presented in this report are for purposes of estimating the contribution rates effective from July 2023 to June 2025 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendices of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.



December 2021
Nehalem Bay Wastewater Agency/2724

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

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

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

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

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices 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.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Matt Larrabee'.

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

A handwritten signature in black ink, appearing to read 'Scott Preppernau'.

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



ACTUARIAL VALUATION REPORT DECEMBER 31, 2020

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Nehalem Bay Wastewater Agency -- #2724

December 2021

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Executive Summary

Milliman has prepared this report for Nehalem Bay Wastewater Agency to:

- Provide summary December 31, 2020 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide advisory information calculated as of December 31, 2020 on estimated employer-specific contribution rates effective July 1, 2023 through June 30, 2025, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2020.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2020 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Nehalem Bay Wastewater Agency.

Employer Contribution Rates

The following table summarizes the employer contribution rates calculated as of December 31, 2020 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Advisory 2023 - 2025 Employer Rates Calculated as of December 31, 2020 for Nehalem Bay Wastewater Agency

	Payroll		
	Tier 1/Tier 2	OPSRP	
		General Service	Police & Fire
Pension			
Normal cost rate	18.15%	9.99%	14.74%
Tier 1/Tier 2 UAL rate ¹	5.28%	5.28%	5.28%
OPSRP UAL rate	2.09%	2.09%	2.09%
Side account rate relief ²	0.00%	0.00%	0.00%
Member redirect offset ³	(2.40%)	(0.65%)	(0.65%)
Net employer pension contribution rate	23.12%	16.71%	21.46%
Retiree Healthcare			
Normal cost rate	0.05%	0.00%	0.00%
UAL rate	(0.05%)	0.00%	0.00%
Net retiree healthcare rate	0.00%	0.00%	0.00%
Total net employer contribution rate	23.12%	16.71%	21.46%

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

¹ Includes Multnomah Fire District #10 rate.

² The side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 UAL Contribution Rates for the July 2023 to June 2025 Biennium

The rate collar limits changes in the UAL Rate for the rate pool, but does not limit changes in rates for individual employers related to side accounts and does not limit the change in the normal cost rate. The table below shows the possible minimum and maximum UAL Rates first effective as of July 1, 2023. The collar width, which in general is the amount the UAL Rate could increase or decrease from the current UAL Rate being paid, is 4% of pay or (if greater) one-third of the difference between the collared and uncollared UAL rates at the last rate-setting valuation. However, the UAL Rate is only allowed to decrease by the full collar width if the employer's funded status (excluding side accounts) is greater than or equal to 90%. The UAL Rate is not allowed to decrease at all if funded status is below 87%, and the allowable decrease is phased in for funded status levels from 87% to 90%.

For comparison, the employer's funded status as of December 31, 2020 is 58%.

2021-2023 Biennium	2023-2025 Biennium	
	5.14%	<<<No higher than this
1.14%	1.14%	<<<No lower than this if December 31, 2021 funded status is 87% or lower
	(2.86%)	<<<No lower than this if December 31, 2021 funded status is 90% or higher

Normal Cost Rates

As seen on the prior page, the other large rate components are the normal cost rates for the Tier 1/Tier 2 and OPSRP programs. The normal cost rate represents the projected cost of benefits earned by current year service.

The normal cost rate in any biennium is driven by the active member demographics of the experience pooling groups in the which the employer's members participate. The active member census as of December 31, 2021 will be used to calculate the adopted 2023 - 2025 biennium normal cost rate and may vary significantly from the active member census used in this advisory valuation.

Each biennium's normal cost rate is also sensitive to the investment return assumption, or assumed rate, adopted by the PERS Board for the valuation. The lower the assumed rate, the higher the normal cost rate. The 2023 - 2025 biennium's normal cost rate will be based on a 6.90% assumed rate adopted by the PERS Board during 2021, which is a decrease from the 7.20% assumed rate used in calculating the 2021 - 2023 normal cost rate. To illustrate the sensitivity of the assumption, the decrease in the assumed rate increased system-average normal cost rates by approximately 1.15% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP.

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2015	\$1,790,526	\$1,982,332	\$191,806	90%	\$337,025	57%
12/31/2016	1,839,443	2,139,207	299,764	86%	402,363	75%
12/31/2017	2,043,588	2,231,725	188,137	92%	448,235	42%
12/31/2018	2,004,041	2,249,295	245,254	89%	474,944	52%
12/31/2019	2,220,269	2,407,407	187,138	92%	424,838	44%
12/31/2020	1,534,898	2,624,174	1,089,276	58%	335,963	324%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Nehalem Bay Wastewater Agency

	Actuarial Valuation as of	
	December 31, 2020	December 31, 2019
T1/T2 UAL	\$1,089,276	\$187,138
Allocated pooled OPSRP UAL	68,771	69,841
Side account	0	0
Net unfunded pension actuarial accrued liability	1,158,047	256,979
Combined valuation payroll	335,963	424,838
Net pension UAL as a percentage of payroll	345%	60%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	(\$7,717)	(\$8,849)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to the combined valuation payroll of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2020	December 31, 2019
Normal cost	\$0	\$17,544
Tier 1/Tier 2 valuation payroll	0	108,759
Tier 1/Tier 2 pension normal cost rate	18.15%	16.13%
Tier 1/ Tier 2 Actuarial accrued liability	\$2,624,174	\$2,407,407
Actuarial asset value	1,534,898	2,220,269
Tier 1/Tier 2 Unfunded actuarial accrued liability	1,089,276	187,138
Tier 1/ Tier 2 Funded status	58%	92%
Combined valuation payroll	\$335,963	\$424,838
Tier 1/Tier 2 UAL as a percentage of payroll	324%	44%
Tier 1/Tier 2 UAL rate	5.28%	1.28%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members ¹	0	1
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	7	6

¹ Active counts do not include concurrent employees who have a separate dominant employer.

Executive Summary

Principal Valuation Results (continued)

OPSRP

(\$ in millions)	Actuarial Valuation as of	
	December 31, 2020	December 31, 2019
General service normal cost	\$731.3	\$582.1
OPSRP general service valuation payroll	7,322.9	6,740.9
General service normal cost rate	9.99%	8.64%
Police and fire normal cost	\$152.2	\$119.5
OPSRP police and fire valuation payroll	1,032.6	919.0
Police and fire normal cost rate	14.74%	13.00%
Actuarial accrued liability	\$10,008.1	\$8,082.2
Actuarial asset value	7,548.8	6,190.4
Unfunded actuarial accrued liability	2,459.3	1,891.8
Funded status	75%	77%
Combined valuation payroll	\$12,042.7	\$11,533.7
UAL as a percentage of payroll	20%	16%
UAL rate	2.09%	1.69%

Retiree Healthcare

(\$ in millions)	Actuarial Valuation as of	
	December 31, 2020	December 31, 2019
RHIA		
Normal cost	\$1.7	\$1.9
Tier 1 / Tier 2 valuation payroll	3,687.3	3,873.9
Normal cost rate	0.05%	0.05%
Actuarial accrued liability	\$383.6	\$403.9
Actuarial asset value	660.2	644.1
Unfunded actuarial accrued liability	(276.6)	(240.3)
Funded status	172%	159%
Combined valuation payroll	\$12,042.7	\$11,533.7
UAL as a percentage of payroll	(2%)	(2%)
UAL rate	0.00%	0.00%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2019	N/A		
2. Deposits made during 2020			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2020			
5. Side account earnings during 2020			
6. Side account as of December 31, 2020 (1. + 2. + 3. + 4. + 5.)			

Side Account Information

Side Account Balances

	December 31, 2020	December 31, 2019
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Side Account 4	0	0
Side Account 5	0	0
Total	\$0	\$0

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the default fixed period ends 18 years after the first rate-setting valuation following its creation, though employers can select a shorter period under certain specified circumstances. For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.

December 31, 2020			December 31, 2019			
Combined valuation payroll		\$335,963	Combined valuation payroll		\$424,838	
	Side account balance	Amortization factor	Side account rate	Side account balance	Amortization factor	Side account rate
1.	0		0.00%	0		0.00%
2.	0		0.00%	0		0.00%
3.	0		0.00%	0		0.00%
4.	0		0.00%	0		0.00%
5.	0		0.00%	0		0.00%
Total	\$0		0.00%	\$0		0.00%

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2020	December 31, 2019
1. Member reserves	\$0	\$214,516
2. Employer reserves	668,462	1,397,115
3. Benefits in force reserve	866,435	608,638
4. Employee Pension Stability Account (EPSA)	0	N/A
5. Total market value of assets (1. + 2. + 3. + 4.)	\$1,534,898	\$2,220,269

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2019 to December 31, 2020
1. Market value of assets at beginning of year	\$2,220,269
2. Regular employer contributions	10,383
3. EPSA contributions	0
4. Benefit payments and expenses	(217,909)
5. Adjustments ¹	(597,343)
6. Interest credited	119,498
7. Total transferred from side accounts	0
8. Market value of assets at end of year (1. + 2. + 3. + 4. + 5. + 6. + 7.)	\$1,534,898

¹ Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2020	December 31, 2019
Tier 1 Police & Fire	\$0	\$0
Tier 1 General Service	0	17,544
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	\$0	\$17,544

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2020.

	Before Changes	After Changes	Net Change
Normal Cost	\$0	\$0	\$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2020	December 31, 2019
Active Members		
▪ Tier 1 Police & Fire	\$0	\$0
▪ Tier 1 General Service	0	769,018
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ Total Active Members	\$0	\$769,018
Dormant Members	0	0
Retired Members and Beneficiaries	2,624,174	1,638,389
Total Actuarial Accrued Liability	\$2,624,174	\$2,407,407

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2020.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	\$2,537,378	\$2,624,174	\$86,796

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2020	December 31, 2019
1. Actuarial accrued liability	\$2,624,174	\$2,407,407
2. Actuarial value of assets	1,534,898	2,220,269
3. Unfunded accrued liability (1. – 2.)	1,089,276	187,138
4. Funded percentage (2. ÷ 1.)	58%	92%
5. Combined valuation payroll	\$335,963	\$424,838
6. Unfunded accrued liability as % of combined valuation payroll (3. ÷ 5.)	324%	44%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, the PERS Board established a policy to amortize the Tier 1/Tier 2 UAL over a 20-year period, with each subsequent odd-year valuation establishing a new 20-year closed-period amortization schedule for new Tier 1/Tier 2 UAL amounts based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases. As part of Senate Bill 1049, passed in 2019, the Legislature directed the PERS Board to enact a one-time re-amortization of Tier 1/Tier 2 UAL over 22 years. This means that, effective with the December 31, 2019 rate-setting valuation, the entire unamortized Tier 1/Tier 2 UAL for each rate pool and independent employer was re-amortized over a 22-year period as a level percentage of projected future payroll. For the December 31, 2021 and subsequent odd-year valuations, the PERS Board again has authority to set the amortization schedule. In the 2020 Experience Study, the PERS Board confirmed the policy of 20-year closed-period amortization schedules for Tier 1/Tier 2 UAL going forward. This even-year advisory valuation shows an estimate of the amortization schedules to be established on December 31, 2021, with the estimate based on experience through the end of 2020.

Amortization Base	UAL December 31, 2019	Payment	Interest	UAL December 31, 2020	Next Year's Payment
December 31, 2019	\$187,138	\$12,388	\$12,998	\$187,748	\$12,601
December 31, 2020	N/A	N/A	N/A	\$901,528	\$62,606
Total				\$1,089,276	\$75,207

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2019	\$2,407,407
b. Normal cost at December 31, 2019 (excluding assumed expenses)	16,558
c. Benefit payments during 2020	(215,885)
d. Interest at 7.20% to December 31, 2020	166,157
e. Expected actuarial accrued liability before changes (a. + b. + c. + d.)	2,374,237
f. Change in actuarial accrued liability due to assumption, method, and plan changes	86,796
g. Expected actuarial accrued liability at December 31, 2020 (e. + f.)	2,461,033
2. Actuarial accrued liability at December 31, 2020	2,624,174
3. Gain/(loss) on actuarial accrued liability (1.g. - 2.)	(163,141)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2019	2,220,269
b. Contributions for 2020 ¹	10,383
c. Benefit payments and expenses during 2020	(217,909)
d. Interest at 7.20% to December 31, 2020	152,388
e. Expected actuarial value of assets at December 31, 2020 (a. + b. + c. + d.)	2,165,131
5. Actuarial value of assets at December 31, 2020	1,534,898
6. Gain/(loss) on actuarial value of assets (5. - 4.e.)	(630,233)
7. Total actuarial gain/(loss) (3. + 6.)	(\$793,374)

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2019 is provided below.

1. UAL at December 31, 2019	\$187,138
2. Expected increase	21,968
3. Liability (gain)/loss	163,141
4. Asset (gain)/loss	630,233
5. Change due to changes in assumptions, methods, and plan provisions	86,796
6. UAL at December 31, 2020 (1. + 2. + 3. + 4. + 5.)	\$1,089,276

¹ Includes EPSA contributions and rate relief from side accounts.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification. Normal cost rates shown below are before any offset for redirected member contributions under Senate Bill 1049.

Development of Tier 1/Tier 2 Total Normal Cost Rate

	December 31, 2020			December 31, 2019		
	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate
Tier 1 Police & Fire	\$0	\$0	0.00%	\$0	\$0	0.00%
Tier 1 General Service	0	0	0.00%	17,544	108,759	16.13%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	\$0	\$0	18.15%	\$17,544	\$108,759	16.13%

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2020	December 31, 2019
1. Total Tier 1/Tier 2 UAL	\$1,089,276	\$187,138
2. Next year's Tier 1/Tier 2 UAL payment	75,207	12,388
3. Combined valuation payroll	335,963	424,838
4. Tier 1/Tier 2 UAL rate (2. ÷ 3.)	22.39%	2.92%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar or side accounts.

	Advisory July 1, 2023 Rates calculated as of December 31, 2020	July 1, 2021 Rates calculated as of December 31, 2019
1. Tier 1/Tier 2 pension contribution rates		
a. Tier 1/Tier 2 pension normal cost rate	18.15%	16.13%
b. Tier 1/Tier 2 UAL rate	22.39%	2.92%
c. Multnomah Fire District #10 rate	0.14%	0.14%
d. Total Tier 1/Tier 2 pension rate (a. + b. + c.)	40.68%	19.19%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Decrease Restrictions

The UAL Rate for an employer is confined to a collared range based on the prior biennium's collared UAL Rate. For an independent employer, the collar width for the Tier 1/Tier 2 UAL Rate is the greater of 4% of payroll or one-third of the difference between the collared and uncollared UAL Rate at the prior rate-setting valuation. The maximum Tier 1/Tier 2 UAL Rate will always be at least 0.00% of payroll if the employer's funded status (excluding side accounts) is less than 100%. The PERS Board adopted restrictions on when the UAL Rate may decrease: the UAL Rate may not decrease if the funded status (excluding side accounts) is 87% or lower, while it may decrease by the full collar width if funded status is 90% or greater. The allowable decrease is phased in from 87% to 90% funded.

The table below shows the current Tier 1/Tier 2 UAL Rate for the period from July 1, 2021 through June 30, 2023, develops the maximum and minimum UAL Rates effective July 1, 2023 based on the collar, and determines the advisory collared Tier 1/Tier 2 UAL Rate.

1. Current Tier 1/Tier 2 UAL Rate	1.14%
2. Size of rate collar	
a. Impact of rate collar, prior rate-setting valuation	(1.78%)
b. Size of rate collar <i>(maximum of 4% or absolute value of [a. / 3])</i>	4.00%
c. Funded percentage	58%
d. Permissible decrease to UAL Rate <i>(If c. > 90%, b.; if c. < 87%, 0.00%; otherwise, graded between those rates)</i>	0.00%
3. Advisory July 1, 2023 minimum Tier 1/Tier 2 UAL Rate (1. – 2.d.)	1.14%
4. Advisory July 1, 2023 maximum Tier 1/Tier 2 UAL Rate (1. + 2.b., but not less than 0% if 2.c. < 100%)	5.14%
5. Advisory July 1, 2023 Tier 1/Tier 2 UAL Rate, before collar	22.39%
6. Net adjustment due to rate collar (3. – 5., but not < 0, or 4. – 5., but not > 0)	(17.25%)
7. Advisory July 1, 2023 Tier 1/Tier 2 UAL Rate, after collar (5. + 6.)	5.14%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar.

	Advisory July 1, 2023 Rates calculated as of December 31, 2020	July 1, 2021 Rates calculated as of December 31, 2019
1. Tier 1/Tier 2 pension contribution rates		
a. Tier 1/Tier 2 pension normal cost rate	18.15%	16.13%
b. Tier 1/Tier 2 UAL rate	5.14%	1.14%
c. Multnomah Fire District #10 rate	0.14%	0.14%
d. Total Tier 1/Tier 2 pension rate (a. + b. + c.)	23.43%	17.41%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	\$0	\$0	\$0
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	0	0	0
OPSRP valuation payroll	335,963	0	335,963
Combined valuation payroll	\$335,963	\$0	\$335,963

Employer Member Census

	December 31							
	2020				2019			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members ¹								
General Service	0	0	5	5	1	0	5	6
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	5	5	1	0	5	6
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	7	0	1	8	6	0	1	7
Police & Fire	0	0	0	0	0	0	0	0
Total	7	0	1	8	6	0	1	7
Grand Total Number of Members	7	0	6	13	7	0	6	13

¹ Active counts do not include concurrent employees who have a separate dominant employer.

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2020

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	0	0	0	0	0	0	0	0

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2020

Dormant Members			Retired Members and Beneficiaries		
Age	Count	Average Deferred Monthly Benefit	Age	Count	Average Monthly Benefit
<20			<45		
20-24			45-49		
25-29			50-54		
30-34			55-59	1	4,363
35-39			60-64	1	3,399
40-44			65-69	1	1,847
45-49			70-74	2	1,964
50-54			75-79	2	819
55-59			80-84		
60-64			85-89		
65-69			90-94		
70-74			95-99		
75+			100+		
Total			Total	7	2,168

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2020 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

<i>Actuarial cost method</i>	Entry Age Normal.
<i>Amortization method</i>	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10-year period. If a Retiree Healthcare program is over 100% funded the actuarial surplus is amortized over a rolling 20-year period over Tier 1/Tier 2 payroll. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which set actuarially determined contribution rates for the 2021-2023 biennium. Future Tier 1/Tier 2 gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
<i>Asset valuation method</i>	Market value of assets, excluding reserves.
<i>Contribution rate stabilization method (rate collar)</i>	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to OPSRP and to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The UAL Rate contribution rate component is confined to a collared range based on the prior biennium's collared UAL Rate and a defined collar width. The UAL Rate is not allowed to decrease if the funded status of the rate pool or employer is 87% or lower. The rate collar does not limit the change in the normal cost rate or changes for individual employers related to side accounts.

Economic Assumptions

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

<i>Investment return</i>	6.90% compounded annually on system assets.
<i>Interest crediting</i>	6.90% compounded annually on members' regular account balances. 6.90% compounded annually on members' variable account balances.
<i>Inflation</i>	2.40% per year.
<i>Payroll Growth</i>	3.40% per year.
<i>Healthcare cost trend</i>	Ranging from 5.9% in 2021 to 3.9% in 2074.
<i>Administrative Expenses</i>	\$59 million per year is added to the total system normal cost and allocated between Tier 1/Tier 2 and OPSRP based on valuation payroll.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2019 actuarial valuation are described briefly below and are described in additional detail in the system-wide actuarial valuation report.

Changes in Actuarial Methods and Allocation Procedures

- The rate collar methodology was revised to only restrict changes in the UAL Rate component and to narrow the width of allowable changes.
- The UAL Rate amortization methodologies for the RHIA and RHIPA programs were changed to allow a limited rate offset when a program is in an actuarial surplus position (over 100% funded).
- The assumed system-average level of member redirect contributions to Tier 1/Tier 2 and OPSRP was updated to reflect the projected effects of House Bill 2906.

Changes in Economic Assumptions

- The long-term inflation assumption was lowered from 2.50% to 2.40% and the system payroll growth assumption was lowered from 3.50% to 3.40%.
- The assumed average annual long-term investment return was lowered from 7.20% to 6.90%.
- Interest crediting on regular and variable member accounts was also lowered to 6.90%.
- Assumed administrative expenses were updated and changed to a combined assumption for both Tier 1/Tier 2 and OPSRP.

Changes in Demographic Assumptions

- The base mortality assumption was changed for School District males and an updated future mortality improvement projection scale was adopted for all groups.
- Termination, disability and retirement rates were updated for some groups to more closely match observed and anticipated future experience.
- Assumptions for merit increases, unused sick leave, and vacation pay were updated.
- The assumed healthcare cost trend rates for the RHIPA program as well as the participation assumptions for both RHIA and RHIPA were updated.

A complete summary of all assumptions used as part of the December 31, 2020 actuarial valuation is contained in the system-wide actuarial valuation report.

Brief Summary of Changes in Plan Provisions

A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report. The following changes made since the prior valuation were reflected in the December 31, 2020 actuarial valuation:

- Senate Bill 111, signed on June 1, 2021, increased the death benefit payable to a surviving spouse when a retirement-eligible member dies. Previously, the benefit was based on 50% of the actuarial equivalent value of the member's retirement benefit, but this was increased to 100% of the actuarial equivalent value.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability/(Surplus)

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

Pre-SLGRP Pooled Liability/(Surplus)

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

Present Value

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

Rate Collar

A contribution rate setting methodology that defines the maximum biennium-to-biennium change in the UAL contribution rate for a given experience-sharing pool.

Required Supplementary Information (RSI)

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

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

The accounting standard governing a state or local governmental employer’s accounting for pensions. The standard replaced GASB 27 for fiscal years beginning after June 15, 2014.

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

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions. The standard replaced GASB Statement 45 for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability/(Surplus)

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool. The initial balance of liability or surplus is calculated at the time an employer joins the pool. That balance is then amortized over time via employer contribution rate charges (for a liability) or rate offsets (for a surplus).

Unfunded Accrued Liability (UAL)

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



Milliman
1455 SW Broadway, Suite 1600
Portland, OR 97201-3412
503 227 0634

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