# 2023

# ACTUARIAL VALUATION REPORT

## Law Enforcement Officers' and Firefighters' Plan 2 Retirement Board

Office of the State Actuary

*"Supporting financial security for generations."*

# 2023

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## Law Enforcement Officers' and Firefighters' Plan 2 Retirement Board

## Table of Contents




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Legislative Support Services

Legislative Evaluation and Accountability Program Committee

LEOFF Plan 2 Retirement Board


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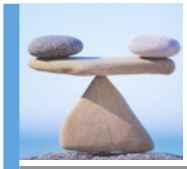

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**Letter of Introduction**
**LEOFF Plan 2 Actuarial Valuation Report**
**as of June 30, 2023**

November 2024

As required under Chapter 41.45 of the Revised Code of Washington (RCW), this report documents the results of an actuarial valuation of the Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (LEOFF 2).

The primary purpose of this valuation is to determine contribution requirements for LEOFF 2 for the 2025-2027 Biennium based on a June 30, 2023, measurement date and under the funding policy established by the LEOFF 2 Board (the Board) and the Legislature. This valuation also provides information on the funding progress and developments in the plan over the past year.

This report is organized into the following sections:

1. Summary of Key Results.
2. Actuarial Exhibits.
3. Participant Data.
4. Appendix.
5. Resources.

The **Summary of Key Results** provides a high-level summary of the valuation results, funding policy, key plan provisions, and commentary on risk. The **Actuarial Exhibits** provide detailed actuarial asset and liability information. The **Participant Data** section provides key metrics of the participant data such as headcounts, average benefits, and average salary. The **Appendix** provides access to a summary of the principal actuarial assumptions and methods, major plan provisions, and additional information used to prepare this valuation. The **Resources** section outlines additional supplemental information found on our website.

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We encourage you to submit any questions you might have concerning this report to our email address state.actuary@leg.wa.gov. We also invite you to visit our website (OSA Website), for further information regarding the actuarial funding of the Washington State retirement systems.

Sincerely,

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Actuary

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State Actuary

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Graham Dyer, ASA
Senior Actuarial Analyst

SECTION I.

# SUMMARY OF KEY RESULTS

# Intended Use

The purpose of this report is to develop contribution rates required to fund LEOFF Plan 2 for the 2025-27 Biennium based on a June 30, 2023, measurement date, and the funding policy described in this section. Throughout this report, we refer to these rates as "calculated contribution rates."

This report provides information on the funding progress and developments in the plan over the past year and changes in calculated contribution rates from the prior rate-setting valuation. This report also discloses the data, assumptions, and methods we used to develop the contribution rates. This report is not intended to satisfy the accounting requirements under the Governmental Accounting Standards Board (GASB) rules.

Similarly, this actuarial valuation is not intended to report on the overall health or financial condition of LEOFF Plan 2. Such information can be found in the *2023 Report on Financial Condition* (RFC), which we issue every two years. The key measures we use in the RFC to assess the health of the pension plan include affordability and solvency of the retirement plan.

# Contribution Rates

We determine the member, employer, and state contribution rates as a percentage of salary based on the funding policy for the plan. The following summary table shows contribution rates based on the 2023 valuation. The **Actuarial Exhibits** section shows how we developed the contribution rates for 2023.

| 2023 Calculated Contribution Rates | |
|---|---|
| **Member** | 9.43% |
| **Employer*** | 5.66% |
| **State** | 3.77% |

**Excludes administrative expense rate.*

The calculated contribution rates for 2023 reflect the modified minimum contribution rate funding policy under Substitute House Bill (SHB) 1701, including an offset to the minimum rates for the 2025-27 Biennium.

# Projected Contribution Rates

In addition to calculating contribution rates in this report, we also estimate contribution rates for future biennia based upon projected assets and liabilities. These projected rates can be found on our website and will be updated in the fall of 2024 to reflect the results from this report. Please note that these projected rates may vary from rates calculated in future valuation reports based on modifications to plan provisions, assumptions, and the actual experience of the plan.

# Contribution Rate-Setting Cycle

Under current Washington State law, in July of even-numbered years, the Board reviews the basic contribution rates calculated by the Board-retained actuary. These rates are based on an actuarial valuation performed on asset, participant, and plan information compiled in odd-numbered valuation years. In calculating basic contribution rates, the Board-retained actuary applies the statutory funding policies described in this section. The Board then adopts contribution rates for LEOFF 2 as provided under RCW 41.26.720(1)(a). The adopted rates remain in place for the ensuing biennium, subject to revision by the Legislature.

| 2025-27 Contribution Rates | | |
|---|---|---|
| | Calculated | Adopted |
| **Member** | 9.43% | 8.53% |
| **Employer*** | 5.66% | 5.12% |
| **State** | 3.77% | 3.41% |

**Excludes administrative expense rate.*

The Revised Code of Washington 41.45.070 requires that a temporary and supplemental contribution rate increase be charged to fund the cost of benefit enhancements enacted following the adoption of the basic rates. Supplemental contribution rates, if enacted, are included in the basic rates at the beginning of the next contribution rate-setting cycle.

# Funding Policy

Washington State relies on systematic actuarial funding to finance the ongoing cost of the state retirement systems. Under this financing approach, we reduce the cost of future pension payments by the expected long-term return on invested contributions. The investment of these contributions is under the direction of the Washington State Investment Board (WSIB). RCW 43.33A.110 requires WSIB to maximize investment returns at a prudent level of risk.

The state's funding policy is found in Chapter 41.45 RCW — Actuarial Funding of State Retirement Systems. Under this funding policy, if all actuarial assumptions are realized and all future contributions required under this funding policy are made, we expect the funding policy to accumulate sufficient assets to provide for all future benefits for current members when due.

Funding policy includes the following goals:

- Provide a dependable and systematic process for funding the benefits to members and retirees of the Washington State retirement systems.
- Fully amortize the total cost of LEOFF Plan 1 not later than June 30, 2024.
- Fully fund LEOFF Plan 2, as provided by law.
- Establish long-term employer contribution rates that will remain a relatively predictable proportion of future state budgets.
- Fund, to the extent feasible, all benefits for members over the working lives of those members so that the taxpayers who receive the services of those members pay the cost of their benefits.

The LEOFF 2 funding policy splits the required contribution rate by 50% for members, 30% for employers, and 20% for the state.

SHB 1701 revised the LEOFF 2 minimum contribution rate funding policy to include three tiers of rates based the plan's funded ratio. The minimum rates equal 100% of the Entry Age Normal Cost (EANC) when the funded ratio is below 105%. The minimum rates decrease to 90% of the EANC when the funded ratio meets or exceeds 105% and is less than 110%. If the funded ratio is at least 110%, then the minimum rates equal 80% of the EANC. An additional offset reduction to the 90% and 100% minimum EANC rates applies through the 2035-37 Biennium. Please see the **Appendix** for more details.

## COMMENTS ON 2023 VALUATION RESULTS

Many factors influence actuarial valuation results from one measurement date to the next. These factors include changes in the plan provisions or funding policy, changes in assumptions or methods, and covered population and plan experience that varies from our expectations.

## CHANGES IN PLAN PROVISIONS OR FUNDING POLICY

The Department of Retirement Systems (DRS) holds authority over certain sections of the Washington Administrative Code which govern aspects of the state retirement system. Consistent with their authority, DRS lowered the savings fund regular interest from 5.5% to 2.75%, effective July 1, 2022. The Washington Administrative Code 415-02-150 provides information on regular interest credited to LEOFF Plan 2 individual accounts and the current savings fund interest rate can be found on the DRS website.

Laws passed during the 2024 Legislative Session that impacted the results in this report through benefit enhancements include the following:

- Second Substitute House Bill 2014 – Expands access to fully subsidized Interruptive Military Service Credit (IMSC) by broadening the definition of veteran to include certain qualifying discharges.
- Substitute Senate Bill 6197 – Enacts four changes to the LEOFF Plan 2 Retirement System related to death benefits, the definition of "firefighter," managing overpayments, and disability benefits.

The laws noted above represent material changes to benefit plan provisions from the 2024 Legislative Session and are not meant to be exhaustive.

## CHANGES IN ASSUMPTIONS OR METHODS

- This valuation does not include any changes to economic or demographic assumptions since the prior valuation.
- We made an adjustment to our model to reflect past inflation experience when modeling future COLAs for current annuitants.

Please see the **Appendix** for additional considerations on assumption and method changes since the last valuation.

## CHANGES IN COVERED POPULATION AND PLAN EXPERIENCE

- The actual rate of investment return on the Market Value of Assets (MVA) was 6.90% for Fiscal Year (FY) ending June 30, 2023.
- Salaries increases were notably higher-than-expected. Members who were employed through the duration of the FY experienced, on average, a roughly 10% increase in salary.

Detailed gain and loss information can be found in the **Actuarial Exhibits** section of this report.

# Actuarial Liabilities

The following table summarizes key measures of actuarial liability along with the liabilities from last year's valuation. The Present Value of Fully Projected Benefits (PVFB) represents the total expected value of all future benefits payments for current members when discounted at the valuation interest rate. The actuarial accrued liability identifies the portion of the PVFB that has been accrued or "earned" as of the valuation date based on the Entry Age Normal (EAN) actuarial cost method.

| Actuarial Liabilities | | |
|---|---|---|
| *(Dollars in Millions)* | **2023** | **2022** |
| **Present Value of Fully Projected Benefits** | $25,412 | $23,018 |
| **Present Value of Accrued Benefits** | $19,011 | $17,336 |
| **Valuation Interest Rate** | 7.00% | 7.00% |

See the **Actuarial Exhibits** section of this report for a summary of actuarial liabilities. For projected benefit payments by year, please visit our Interactive Reports webpage. Also, see the Glossary webpage for brief explanations of the actuarial terms.

# Assets

The following table shows the MVA and Actuarial Value of Assets (AVA) along with the approximate rates of investment returns.

An AVA is used to limit the volatility in contribution rates and funded status due to annual investment earnings. We smooth (or defer recognition of) the difference between actual and expected annual investment returns over a specific period not to exceed eight years.

| Assets | | |
|---|---|---|
| *(Dollars in Millions)* | **2023** | **2022** |
| **MVA** | $20,617 | $19,162[1] |
| **AVA**[2] | 19,342 | 17,985 |
| **Member/Employer Contributions** | 452 | 415 |
| **Disbursements** | (818) | (499) |
| **Investment Return** | 1,327 | 37 |
| **Other Revenue** | $494 | $22 |
| **MVA Return**[3] | 6.90% | 0.21% |
| **AVA Return**[2] | 9.54% | 9.69% |

*[1] Excludes adjustments made for anticipated future transfers of funds. Please see the 2022 AVR for more information.*

*[2] The AVA is used in determining contribution rates.*

*[3] Dollar-weighted rate of return on the MVA, net of expenses. Please note the dollar-weighted investment return may differ from the time-weighted investment return published by the WSIB for the same period.*

The 2023 and 2022 asset information displayed above and throughout this report include impacts under SHB 1701. This legislation directed transfers of funds between the LEOFF 2 trust and the LEOFF 2 Benefit Improvement Account that occurred in FY 2023. This resulted in a net increase of

approximately $451 million into the LEOFF 2 trust. In the *2021 and 2022 Actuarial Valuation Reports* (AVR), the MVA was adjusted to include this anticipated transfer of funds; that adjustment has been removed from 2023 and the 2022 MVA figures in the prior table. Additionally, 2023 disbursements in the table above and elsewhere in this report reflect one-time, lump-sum payments to eligible annuitants, as provided under SHB 1701, of approximately $215 million in total.

See the **Actuarial Exhibits** section of this report for additional information on the plan's assets and for the development of the AVA.

# Funded Status

The following table displays the plan's funded status as of the June 30, 2023, and June 30, 2022, measurement dates. Please see the **Actuarial Exhibits** section for more information.

| Funded Status | | |
|---|---|---|
| *(Dollars in Millions)* | **2023** | **2022** |
| **a. Entry Age Normal Accrued Liability** | $19,011 | $17,336 |
| **b. Market Value of Assets*** | 20,617 | 19,612 |
| **c. Deferred Gains/(Losses)** | 1,276 | 1,628 |
| **d. Actuarial Value of Assets (b - c)*** | 19,342 | 17,985 |
| **Unfunded Liability (a - d)** | ($331) | ($648) |
| **Funded Ratio (d / a)** | **102%** | **104%** |

*Note: Totals may not agree due to rounding.*

**2022 assets adjusted to reflect anticipated Benefit Improvement Account transfers under 2022 Legislation (C 125 L 22).*

Funded status is one of several measures that helps explain the health of a pension plan. The funded status represents the portion of the actuarial accrued liabilities covered by today's actuarial assets. This means a plan with 100% funded status has one dollar in actuarial assets for each dollar of accrued liabilities at the valuation date. A plan with funded status around 100% is generally considered to be on target with funding. However, funded status above/below 100% is not automatically considered over-funded/at-risk. The funded statuses presented in this report are not sufficient to determine whether a plan has enough assets to terminate or settle the plan obligations. Furthermore, a plan with a funded status above 100% may still require ongoing contributions.

# Commentary on Risk

Actuarial Standards of Practice (ASOP) guide actuaries when performing and communicating their work. ASOP No. 51 – *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions* is specific to communicating risk in defined benefit pension plans, particularly in how actual future measurements may differ significantly from expected future measurements.

In the course of developing our actuarial valuation we make hundreds of assumptions, such as the level of returns on future investments, rates of retirement and mortality, and the future salary growth for active members. In some cases, small changes in these assumptions or unexpected plan experience can lead to significant changes in measurements, like the calculation of a plan's contribution rates or the projection of a plan's funded status. This can affect plan risk, and these sensitivities can evolve as the plan grows and matures over time. The Legislature's response to

these changes and their action governing the state's pension system also affects plan risk. To help readers better understand some of these risks and their potential impacts, we have a Commentary on Risk webpage.

In the **Actuarial Exhibits** section of this report, we have also included the impact to LEOFF Plan 2's funded status from changes in assumed rates of investment return and mortality. One such illustration shows the change to plan liabilities if the Commingled Trust Fund portfolio was invested in low-default-risk fixed income securities.

## Summary of Participant Data

The following table summarizes participant data used in the actuarial valuation for the plan year ending June 30, 2023, along with information from the prior valuation. See the **Participant Data** section for additional information.

| Participant Data | | |
|---|---|---|
| | 2023 | 2022 |
| **Active Members** | | |
| Number | 19,311 | 18,625 |
| Average Annual Salary | $136,552 | $129,107 |
| Average Age | 41.1 | 41.7 |
| Average Service | 11.8 | 12.4 |
| **Retirees and Beneficiaries** | | |
| Number | 9,460 | 8,597 |
| Average Annual Benefit | $61,638 | $58,873 |
| **Terminated Members** | | |
| Number Vested | 1,434 | 1,437 |
| Number Non-Vested* | 3,067 | 2,872 |

**Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.*

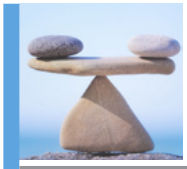
## Key Economic Assumptions

This table shows key economic assumptions used in this actuarial valuation. There were no changes in these assumptions from our prior year's valuation. Please see our *2023 Economic Experience Study* (EES) for information on the development of these assumptions and the asset allocation policy.

| Key Assumptions | |
|---|---|
| Valuation Interest Rate | 7.00% |
| Salary Increase | 3.25% |
| Inflation | 2.75% |

SECTION II.

# ACTUARIAL EXHIBITS



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**Actuarial Certification Letter**
**LEOFF Plan 2 Actuarial Valuation Report**
**as of June 30, 2023**

November 2024

This report documents the results of an actuarial valuation of the Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (LEOFF 2) as defined under Chapter 41.26 of the Revised Code of Washington (RCW). The primary purpose of this funding valuation is to determine contribution requirements for the retirement plan for the 2025-27 Biennium based on a June 30, 2023, measurement date, consistent with the prescribed funding policy established by the LEOFF 2 Retirement Board (the Board) and the Legislature. This valuation also provides information on the funding progress and developments in the plan over the past year. This valuation report should not be used for other purposes. Please replace this report with a more recent report when available.

Future actuarial measurements may differ significantly from the current measurements presented in this report if plan experience differs from that anticipated by the assumptions, or if changes occur in the methods, assumptions, plan provisions, or applicable law. The Risk Assessment webpage provides further information on the range and likelihood of potential outcomes that vary from expected results. The Commentary on Risk webpage provides additional risk education.

The valuation results summarized in this report involve calculations that require assumptions about future economic and demographic events. We believe that the assumptions and methods used in the underlying valuation are reasonable and appropriate for the primary purpose stated above. However, the use of another set of assumptions and methods could also be reasonable and could produce materially different results. Actual results may vary from our expectations.

The economic and demographic assumptions used in this valuation were adopted by the Board. Please see our *2023 Economic Experience Study* (EES) for further information on economic assumptions. We developed the demographic assumptions used in this valuation during the *2013-2018 Demographic Experience Study*.

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In our opinion, the combined effect of all the assumptions used in this funding valuation to calculate actuarially determined contribution rates is expected to have no significant bias.

According to ASOP 4 – *Measuring Pension Obligations And Determining Pension Plan Costs Or Contributions,* a "contribution allocation procedure" is defined as a procedure that determines the actuarially determined contributions for a plan. The procedure uses an actuarial cost method and may use an asset valuation method, an amortization method, or an output smoothing method.

The Legislature prescribed the contribution allocation procedure and asset valuation method for LEOFF Plan 2. In our opinion, the methods under the contribution allocation procedure are reasonable and produce reasonable actuarially determined contributions. The contribution allocation procedure is expected to result with the plan accumulating sufficient assets to pay benefit payments when due assuming all assumptions are realized and actuarially determined contributions are made when due.

The Legislature prescribed the use of the aggregate actuarial cost method to determine contribution requirements for LEOFF Plan 2. The cost method does not produce an unfunded actuarial accrued liability as no unfunded benefits are funded outside the plan's normal cost contributions. Based on the results of our most recent Projections Model (2022 Valuation Projections Model), if all assumptions are realized and all actuarially determined contributions are made when due, we expect LEOFF Plan 2 to maintain a funded status, calculated under the Entry Age Normal actuarial cost method, of at least 100%. After reviewing the results of this actuarial valuation and considering the expected impact of material changes since our last projections model, including the impact of the LEOFF 2 Board adopting contribution rates below actuarially determined levels for the 2025-27 Biennium, we continue to expect the plan to maintain a funded status of at least 100% based on our professional judgment.

I (Matthew M. Smith) provided advice to the Legislature on the development of the asset valuation method and the modification of the original contribution allocation procedure for LEOFF Plan 2 to add minimum contribution rates.

The asset smoothing method adopted during the 2003 Legislative Session (Chapter 11, Laws of 2003, E1) was developed to address the volatility of actuarially determined contributions under the aggregate actuarial cost method when used in combination with the existing asset allocation policy of the WSIB. The combination of the current asset smoothing method with any other funding method or asset allocation policy may not be appropriate.

The contribution allocation procedure for the plan was modified from the original procedure to add a minimum normal cost contribution rate. The minimum contribution rate ensures the



plan receives adequate long-term funding and reduces the risk of the plan collecting inadequate contributions during short-term periods of significantly, better-than-expected experience.

The Department of Retirement Systems (DRS) provided us with audited member and beneficiary data as of June 30, 2023. We checked the data for reasonableness as appropriate based on the purpose of the valuation. The Washington State Investment Board and DRS provided audited financial and asset information as of June 30, 2023. We relied on all the information provided as complete and accurate.

In our opinion, this information is adequate and substantially complete for purposes of this valuation.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. While this report is intended to be complete, we are available to offer extra advice and explanations as needed.

Sincerely,

Kyle Stineman, ASA, MAAA
Actuary

Matthew M. Smith, FCA, EA, MAAA
State Actuary

# Contribution Rates

| Calculated Member and Employer Rate Summary | 2023 | 2021 |
|---|---|---|
| **Member** | 9.43% | 9.94% |
| **Employer*** | 5.66% | 5.96% |
| **State** | 3.77% | 3.98% |

**Excludes administrative expense rate.*

| Development of Calculated Employer/State Rates | |
|---|---|
| **a. Total Normal Cost** | 18.86% |
| **b. Member Normal Cost (a x 50%)** | 9.43% |
| **c. Total Employer/State Normal Cost (a - b)** | **9.43%** |
| **d. State Normal Cost (a x 20%)** | 3.77% |
| **e. Employer Normal Cost (c - d)*** | 5.66% |

**Excludes administrative expense rate. The state pays 20% of the total normal cost for LEOFF 2. This reduces the employer contribution rate from 9.43% to 5.66%.*

The following table compares the member and total employer contribution rates that were adopted by the LEOFF Plan 2 Retirement Board against the rates that were calculated by the Office of the State Actuary (OSA).

| 2025-27 Contribution Rates | Calculated | Adopted |
|---|---|---|
| **Member** | 9.43% | 8.53% |
| **Employer*** | 5.66% | 5.12% |
| **State** | 3.77% | 3.41% |

**Excludes administrative expense rate.*

The following table shows the development of the normal cost rates. Consistent with current funding policy set in statute, the normal cost rates include minimum contribution rates to provide stable and adequate contribution rates over time. Based on the plan's current funded status, the minimum rates are 100% of the normal cost calculated under the EAN actuarial cost method minus a 75 basis points rate offset. Please see the **Appendix** for additional detail on how the rate offset was developed. Please see the Glossary for a more detailed explanation of EAN.

| Development of Normal Cost Rates<br>*(Dollars in Millions)* | |
|---|---|
| **1. Calculated Member Normal Cost Rate** | |
| **a. Present Value of Fully Projected Benefits** | $25,392 |
| **b. Valuation Assets** | 19,342 |
| **c. Unfunded Fully Projected Benefits (a - b)** | **6,050** |
| **d. Plan 2 PVS** | 32,207 |
| **e. Weighted PVS (2d)** | **$64,413** |
| **f. Member Normal Cost (c / e)** | 9.39% |
| **g. Member Minimum Contribution Rate[1]** | 9.22% |
| **h. Member Contribution Rate with Minimum** | 9.39% |
| **i. Change In Plan Provisions (Laws of 2024)[2]** | 0.04% |
| **j. Calculated Member Contribution Rate (h + i)** | **9.43%** |
| **2. Calculation of Employer/State Normal Cost Rate** | |
| **a. Present Value of Fully Projected Benefits** | $25,392 |
| **b. Valuation Assets** | 19,342 |
| **c. Unfunded Fully Projected Benefits (a - b)** | 6,050 |
| **d. Present Value of Member Contributions** | 3,025 |
| **e. Employer/State Responsibility (c - d)** | **$3,025** |
| **f. Plan 2 PVS** | **$32,207** |
| **g. Employer/State Normal Cost (e / f)** | 9.39% |
| **h. Employer/State Minimum Contribution Rate[1]** | 9.22% |
| **i. Employer/State Contribution Rate with Minimum** | 9.39% |
| **j. Change In Plan Provisions (Laws of 2024)[2]** | 0.04% |
| **k. Calculated Total Employer/State Contribution Rate (i + j)** | **9.43%** |
| **3 Adopted Contribution Rates for 2025-27** | |
| **a. Member Contribution Rate** | 8.53% |
| **b. Employer Contribution Rate (a - c)** | 5.12% |
| **c. State Contribution Rate** | 3.41% |
| **d. Total Contribution Rate (a + b + c)** | **17.06%** |

*Note: Totals may not agree due to rounding.*

[1] *LEOFF 2 minimum rates vary based on the plan's funded status as of the measurement date.*

[2] *Includes 2023 Legislation effective after measurement date of June 30, 2023.*

The following table shows the minimum member contribution rate calculation.

| Member Minimum Rate | |
|---|---|
| | 2023 |
| **Funded Status** | 102% |
| **(A) 100% EANC** | 9.97% |
| **(B) 100% Offset Rate** | 0.75% |
| **Minimum Rate (A) - (B)** | **9.22%** |

*Note: Calculation shown for member contribution rate only. Employers and the state contribute 60% and 40% of the member rate, respectively.*

## Actuarial Liabilities

| Actuarial Liabilities | | |
|---|---|---|
| *(Dollars in Millions)* | Present Value of Fully Projected Benefits | Entry Age Normal Accrued Liability[1] |
| **Active Members** | | |
| **Retirement** | $13,851 | $8,407 |
| **Termination** | 264 | 46 |
| **Death** | 165 | 27 |
| **Disability** | 745 | 361 |
| **ROC[2] on Termination** | 140 | (40) |
| **ROC[2] on Death** | 73 | 37 |
| **Total Active** | **$15,237** | **$8,838** |
| **Inactive Members** | | |
| **Terminated Vested** | $499 | $499 |
| **Terminated Non-Vested[3]** | 29 | 29 |
| **Service Retired[4]** | 8,850 | 8,850 |
| **Disability Retired** | 505 | 505 |
| **Survivors** | 272 | 272 |
| **Total Inactive** | **$10,155** | **$10,155** |
| **Laws of 2024[5]** | **20** | **19** |
| **2023 Total** | **$25,412** | **$19,011** |
| **2022 Total** | **$23,018** | **$17,336** |

*Note: Totals may not agree due to rounding.*

[1] *Calculated using the EAN cost method. This method is used in the funded ratio calculation and is not used to determine contribution requirements.*

[2] *Return of Contributions.*

[3] *Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.*

[4] *Includes liability from individuals who are entitled to a portion of the primary member's benefit (legal order payees).*

[5] *Includes some 2023 Legislation effective after the measurement date of June 30, 2023.*

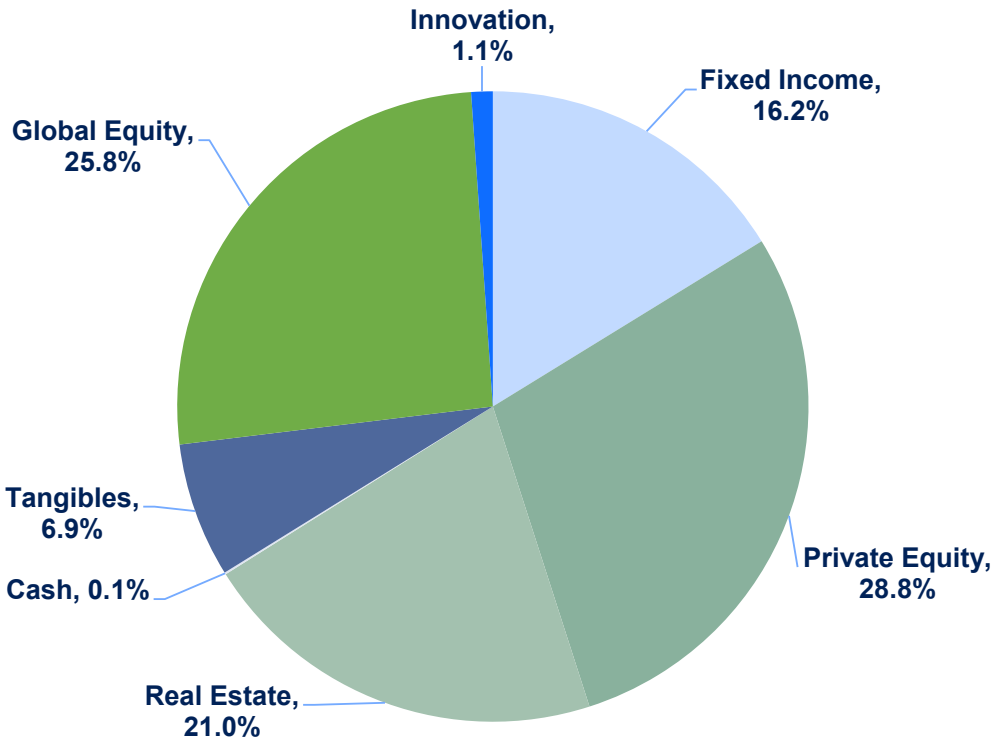
Some line items in the EAN accrued liability tables are negative. This is a result of how these benefits are accrued, over a member's working career, under the EAN actuarial cost method. The accrued liability for a given benefit provision is the difference between (1) today's value of all future benefits for that benefit definition and (2) how much of those future benefits are assumed to be accrued over the rest of the member's career. Item (1) is essentially split into annual "pieces" that are spread evenly across a career from first hire date to last assumed exit. Item (2) is how many more "pieces" they have left to accrue. For benefits like "Return Of Contributions (ROC) on Termination", while we assume members that are eligible for retirement will no longer elect an ROC benefit when they exit the system, they are still accruing the level piece of item (2) each year until they retire. So, in this instance, item (1) is zero but item (2) is positive. This means we get a negative number when subtracting item (2) from item (1).

Please note GASB mandates this methodology for the accrued liability calculation in financial reporting. We use the same methods in this report – a funding valuation – for easier comparison with financial reporting results.

We report the present and future value of benefit payments by year on our website. We also show how the present value of these benefit payments varies by interest rate assumptions. For more information or to view projected benefit payments, please visit our Interactive Reports webpage.

# Plan Assets

**Retirement Commingled Trust Fund (CTF) Asset Allocation**




*Source: Washington State Investment Board June 30, 2023, Quarterly Report.*

**Cash:** Highly liquid, very safe investments that can be easily converted into cash, such as Treasury Bills and money-market funds.

**Fixed Income:** Securities representing debt obligations and usually having fixed payments and maturities. Different types of fixed income securities include government and corporate bonds, mortgage-backed securities, asset-backed securities, convertible issues, and may also include money-market instruments.

**Innovation:** Fund that provides the ability to invest in a broad range of assets that fall outside the traditional asset classes or management style of existing asset classes.

**Global Equity:** Shares of U.S. and non-U.S. corporations that trade on public exchanges or "over the counter." The ownership of a corporation is represented by shares that are claimed on the corporation's earnings and assets.

**Private Equity:** The infusion of equity capital into a private company (one that is not available on the public markets). Private equity investments include securities that are not listed on a public exchange and are not easily accessible to most individuals. These investments range from initial capital in startup enterprises to leveraged buyouts of mature corporations.

**Real Estate:** An externally managed selection of partnership investments with the majority of the partnerships invested in high-quality real estate leased to third parties.

**Tangibles:** The tangible asset portfolio invests in sectors such as infrastructure, timber, agriculture, natural resources, commodities, or other sectors consistent with the goals of the asset class.

Each asset class is unique in terms of expected return, standard deviation, and correlation to other asset classes. Please see page 28 of the 2023 EES for more information.

The following table shows the MVA changes from the previous valuation.

| Change in Market Value of Assets *(Dollars in Millions)* | |
|---|---|
| **2022 Unadjusted Market Value** | **$19,162** |
| **Revenue** | |
| **Member Contributions** | $226 |
| **Employer/State Contributions** | 226 |
| **Investment Return** | 1,327 |
| **Restorations**[1] | 18 |
| **Transfers In** | 476[2] |
| **Miscellaneous** | 0 |
| **Total Revenue** | **$2,273** |
| **Disbursements** | |
| **Monthly Benefits**[3] | $802 |
| **Refunds** | 13 |
| **Transfers Out** | 0 |
| **Expenses** | 2 |
| **Payables** | 0 |
| **Total Disbursements** | **$818** |
| **2023 Market Value** | **$20,617** |

*Note: Totals may not agree due to rounding.*

[1] *Includes additional annuity purchases and service credit purchases.*

[2] *Reflects the transfer of the Benefit Improvement Account fund into the LEOFF 2 trust under SHB 1701 (Chapter 125, Laws of 2022) during FY 2023. This replaces the adjustment, as of June 30, 2022, found in the 2022 AVR.*

[3] *LEOFF Plan 2 monthly benefits includes $215 million provided under SHB 1701 (Chapter 125, Laws of 2022).*

| Calculation of Actuarial Value of Assets<br>*(Dollars in Millions)* | | | |
|---|---|---|---|
| **Investment Gains and (Losses) for FY** | | | |
| **a. Market Value at 6/30/2023** | | | $20,617 |
| **b. Expected 7.0% Return*** | | | $1,346 |
| **c. Actual Return** | | | $1,327 |
| **Investment Gain/(Loss) (c - b)** | | | ($19) |
| **Actual Rate of Return** | | | 6.90% |
| **Smoothing Period** | | | 1 |
| **Deferred Gains and (Losses)** | | | |
| **Plan Year Ending** | **Smoothing Period** | **Years Remaining** | |
| **6/30/2023** | 1 | 0 | $0 |
| **6/30/2022** | 7 | 5 | (927) |
| **6/30/2021** | 8 | 5 | 2,202 |
| **Total Deferral** | | | **$1,276** |
| **Market Value less Deferral** | | | $19,342 |
| **70% of Market Value of Assets** | | | 14,432 |
| **130% of Market Value of Assets** | | | 26,802 |
| **Actuarial Value of Assets**** | | | **$19,342** |
| **Ratio (AVA/ MVA)** | | | 94% |

*Note: Totals may not agree due to rounding.*

**Dollar weighted rate of return assuming cashflows occur mid-year.*

***Actuarial Value of Assets can never be less than 70% or greater than 130% of the Market Value of Assets.*

Additional information on the Retirement Commingled Trust Fund, including the asset allocation policy, can be found in the most recent EES.

## Funded Status

Funded status is one of several measures that helps explain the health of a pension plan. The funded status represents the portion of the actuarial accrued liabilities covered by today's actuarial assets and provides information on the funding progress of the plan.

In our AVR, we calculate a plan's funded status by comparing the plan's current assets, determined under an asset valuation method, to the actuarial accrued liability of its members, calculated under an EAN actuarial cost method. Actuarial cost methods vary in the manner they allocate benefits to past and future time periods. We rely on an EAN actuarial cost method to better track the funding progress of accrued (or earned) benefits allocated to past service. Otherwise, the assumptions and methods used to measure funded status is consistent with the state's current funding policy and financing plan for future retirement benefits.

Funded status measures alone are not sufficient to determine whether a plan has enough assets to terminate or settle the plan obligations. Plans may have accumulated sufficient assets, at the measurement date, to satisfy the ongoing goal of having adequate assets to pay all currently earned benefits for existing members when due on an expected basis. However, ongoing

contributions may still be required. The following table provides general guidance on how to interpret a plan's funded status at a point in time.

| Interpretation of Plan Funded Status | | | |
|---|---|---|---|
| | **Less than 100%** | **Equals 100%** | **Greater than 100%** |
| **Assets to Fund Earned Benefits as of the Measurement Date** | Behind schedule on funding goals. | On schedule for funding goals. | Ahead of schedule on funding goals. |
| **Contribution Rates** | Typically requires higher contribution rates in the short term to raise plan's funded status to 100% over time. | Requires ongoing contribution rates for plans with members accruing future service. | Typically requires ongoing contribution rates for plans with members accruing future service. Short-term contribution rates may be lower to reduce the plan's funded status to 100% over time. |

Plans with members accruing future service will typically require ongoing contributions. However, the level of actuarially determined contribution rates relative to current rates may be higher or lower depending on funded status and actual future experience.

The following table calculates the funded status of LEOFF Plan 2 using the methods described in this section.

| **Funded Status on an Actuarial Value Basis*** *(Dollars in Millions)* | |
|---|---|
| **Accrued Liability** | $19,011 |
| **Valuation Assets** | $19,342 |
| **Unfunded Liability** | **($331)** |
| **Funded Ratio** | |
| **2023** | **102%** |
| **2022** | 104% |
| **2021** | 104% |
| **2020** | 113% |
| **2019** | 111% |
| **2018** | 108% |
| **2017** | 109% |
| **2016** | 105% |
| **2015** | 105% |
| **2014** | 107% |

**Liabilities valued using the EAN cost method at an interest rate of 7.0%. All assets have been valued under the actuarial asset method.*

The funded status depends on numerous assumptions. Two of the most significant assumptions are the mortality rates, which estimate how long we expect members to live, and the interest rate or expected return on plan assets. A key component of the mortality assumption is the rate at which mortality is expected to improve in the future. To show this, we doubled the current mortality improvement assumption (longer lifespans than our best estimate) and assumed no

future improvements (shorter lifespans than our best estimate). We also considered the impact if the expected return on assets was 1% lower or higher.

The following tables demonstrate how the funded status of LEOFF Plan 2 changes if we alter these assumptions.

| Sensitivity of Funded Ratios to Mortality Rates | | | |
|---|---|---|---|
| *(Dollars in Millions)* | No Assumed Mortality Improvement | Best Estimate Assumed Mortality | Double Assumed Mortality Improvement |
| **Accrued Liability** | $17,794 | $19,011 | $20,224 |
| **Valuation Assets** | $19,342 | $19,342 | $19,342 |
| **Unfunded Liability** | ($1,547) | ($331) | $882 |
| **Funded Ratio** | 109% | 102% | 96% |

| Sensitivity of Funded Ratios to Interest Rates | | | |
|---|---|---|---|
| *(Dollars in Millions)* | 1% Lower 6.0% | Best Estimate Assumption 7.0% | 1% Higher 8.0% |
| **Accrued Liability** | $21,940 | $19,011 | $16,615 |
| **Valuation Assets** | $19,342 | $19,342 | $19,342 |
| **Unfunded Liability** | $2,598 | ($331) | ($2,726) |
| **Funded Ratio** | 88% | 102% | 116% |

Please see our Commentary on Risk webpage for individual system results or our Interactive Reports webpage for more funded status measures that vary by interest rate assumptions and asset valuation methods.

## Low-Default-Risk Obligation Measure

When determining plan costs for the purposes of calculating required contribution rates, current funding policy prescribes an annual assumed investment return of 7.0% to discount future expected benefits to the measurement date. These expected future investment returns are based on an investment policy that aims to maximize investment returns at a prudent level of risk. This investment strategy has reduced past required contributions and is expected, but not guaranteed, to reduce future required contributions. For example, over the past 20 years across all plans, investment returns have comprised approximately 70% of the pension fund's total income, with the remaining 30% coming from employer contributions and employee contributions.

Ultimately, actual funding requirements will be determined by actual experience including actual investment performance. Actual investment performance will inevitably vary from future expectations.

To provide a sense for how much future costs are potentially reduced under the Board's current funding policy, we can compare those costs to the hypothetical costs under an investment policy with less risk. This comparison also provides a sense for how much costs under current funding policy could increase if future returns from a higher risk investment portfolio are not realized.

In the following table we make such a comparison. First, we display the funded status under current funding policy with an assumed investment return of 7%. Next, we display the funded status under a hypothetical funding policy where the plan would be supported by an investment

portfolio comprised solely of low-default-risk fixed income securities. The latter measurement is referred to as a Low-Default-Risk Obligation Measure (or LDROM).

For the calculation of the LDROM, and consistent with ASOP 4, we selected a discount rate derived from U.S. Treasury yields whose cash flows were reasonably consistent with the pattern of benefit payments expected to be paid by the covered plans in the future. As of June 30, 2023, that discount rate was 3.9% for the state's open plans.

All assumptions other than the assumed rate of investment return match between the two measurements presented below.

| Funded Status on an Actuarial Value Basis | |
|---|---|
| *(Dollars in Millions)* | **LEOFF 2** |
| **Current Funding Policy** | |
| **Discount Rate** | 7.0% |
| **Accrued Liability** | $19,011 |
| **Plan Funded Status** | **102%** |
| **LDROM** | |
| **Discount Rate** | 3.9% |
| **Accrued Liability** | $30,699 |
| **Plan Funded Status** | **63%** |

In the previous table, the funded status is lower under the LDROM than under current funding policy. This measure reflects lower anticipated investment returns than under current funding policy. Lower returns would lead to higher expected contribution requirements if the hypothetical investment policy under the LDROM were the basis for determining future contribution requirements. Those higher expected future contribution requirements would come with lower investment risk than under the state's current policy. An ongoing comparison between these two measures can be helpful when evaluating the reasonableness of the risk/reward tradeoff under the Board's current funding policy.

A funded status measurement, among other measures, is often used to also evaluate the health of a pension plan or security of any underlying benefit promise. As noted above, under the Board's current funding policy future investment returns are expected, but not guaranteed, to cover a significant portion of future costs and serve to reduce required contributions. This same point can be extended to plan funded status. By comparing the funded status under current law funding policy to the LDROM basis, we can provide a sense for how much future accrued benefit payments rely on returns from higher risk investments. Typically, the larger the difference between assumed returns, the larger the difference you'll see between the two funded status measures. Additionally, the impact of that difference compounds over longer periods of future benefit payments. It is important to note that there are additional factors including legal protections that may impact the security of benefits for current participants.

As noted above, the LDROM is based on a hypothetical investment portfolio. Therefore, it is not appropriate to use this measurement to determine contribution requirements or evaluate funding progress under current law funding policy. We expect this measurement to change each year as interest rates change. Given the potential volatility of future interest rates, this measure may change to a larger degree, year over year, than the corresponding measure based on the Board's current funding policy. We also note that if the Board's funding policy were changed in the future to match the hypothetical investment policy under the LDROM, future measurements would vary from the measurements provided in this report due, in part, to the use of different measurement dates,

and potentially the use of different assumptions and methods.

See the **Appendix** for additional supporting information on how we selected the discount rate for the LDROM and the rationale for selection.

## Actuarial Gain/Loss

The following table displays actuarial gains and losses, expressed as funded ratio changes as directed under ASOP 4. Actuaries use gain/loss analysis to compare actual changes to assumed changes from various sources with respect to assets and liabilities. We also use this analysis to determine:

- The accuracy of our valuation model and annual processing.
- Why funded ratios changed.
- The reasonableness of the actuarial assumptions.

Actuarial gains will increase funded ratios; actuarial losses will decrease funded ratios.

Under a reasonable set of actuarial assumptions, actuarial gains and losses will offset over long-term experience periods. Generally, a reduction in funded ratio will require a period of higher contribution rates and an increase in funded ratio will require a period of lower contribution rates.

| Change in Open Plans Funded Ratio by Source | |
|---|---|
| **Change in Rate** | **LEOFF 2** |
| **(a) 2022 Funded Ratio** | 103.7% |
| (b) Remove Laws of 2023 | 0.1% |
| (c) Expected Change in Funded Ratio | (0.2%) |
| **(d) 2023 Expected Funded Ratio (a + b + c)** | **103.6%** |
| **Liabilities** | |
| Salaries | (1.9%) |
| Retirement/Termination/Disability | (0.4%) |
| Mortality | (0.0%) |
| New Hires/Return to Work | (0.1%) |
| Miscellaneous | (0.5%) |
| **(e) Total Liability Gains/Losses** | **(2.9%)** |
| **Assets*** | |
| Investment Returns | 2.5% |
| Contributions/Disbursements | 0.0% |
| **(f) Total Asset Gains/Losses** | 2.5% |
| **Other Changes** | |
| Plan Change | 0.1% |
| Assumption and Methodology Changes | (1.5%) |
| **(g) Total Other Changes** | **(1.4%)** |
| **2023 Funded Ratio** | |
| **(h) 2023 Funded Ratio Before Laws of 2024 (d + e + f + g)** | 101.8% |
| **(i) Laws of 2024**** | **(0.1%)** |
| **(j) 2023 Funded Ratio (h + i)** | 101.7% |
| **Total Change in Funded Ratio (j - a)** | **(2.0%)** |

*Note: Totals may not agree due to rounding.*

**Asset Gain/Loss performed on AVA not MVA.*

***Includes 2023 Legislation effective after measurement date of June 30, 2023.*

SECTION III.

# PARTICIPANT DATA

# Overview of System Membership

LEOFF 2 membership includes firefighters; emergency medical technicians; law enforcement officers including sheriffs; university, port, and city police officers; and enforcement officers with the Department of Fish and Wildlife.

| Active Membership By Employer | |
|---|---|
| **State Agencies** | 148 |
| **Higher Education** | 86 |
| **Counties** | 2,974 |
| **County Sub Divisions** | 518 |
| **First Class Cities** | 5,073 |
| **Other Cities** | 5,215 |
| **Ports** | 216 |
| **Fire Districts** | 5,081 |
| **Total** | **19,311** |

The following table shows participant data changes from the prior valuation to this year's valuation. We divide the participant data into two main categories:

- **Actives —** Members actively employed and accruing benefits in the plan.
- **Annuitants —** Members and beneficiaries receiving post-retirement benefits from the plan.

We also provide the ratio of active to annuitant members. This is one way to track overall plan maturity, and its associated risks, with a smaller ratio indicating a more mature plan. Risks can emerge over time just by the nature of a pension plan growing or maturing. For example, as a plan matures – with fewer active, contributing members relative to the retiree population – the plan's obligations become larger relative to its source of contributions. Additional Commentary on Risk can be found on our website.

| Reconciliation of Active and Annuitant Data | |
|---|---|
| **2022 Actives** | **18,625** |
| **Hires/Rehires** | 2,046 |
| **New Retirees** | (707) |
| **Deaths** | (16) |
| **Terminations** | (637) |
| **2023 Actives** | **19,311** |
| **2022 Annuitants** | **8,597** |
| **New Retirees*** | 901 |
| **Annuitant Deaths** | (63) |
| **New Survivors** | 42 |
| **Other** | (17) |
| **2023 Annuitants** | **9,460** |
| **Ratio of Actives to Annuitants** | **2.04** |

**Includes service and disability retirees.*

# Summary of Plan Participants

| Summary of Plan Participants | 2023 | 2022 |
|---|---|---|
| **Active Members** | | |
| **Number** | **19,311** | **18,625** |
| **Total Salaries** *(Millions)* | $2,637 | $2,405 |
| **Average Age** | 41.1 | 41.7 |
| **Average Service** | 11.8 | 12.4 |
| **Average Salary** | $136,552 | $129,107 |
| **Terminated Members** | | |
| **Vested** | 1,434 | 1,437 |
| **Non-Vested*** | 3,067 | 2,872 |
| **Total Terminated** | **4,501** | **4,309** |
| **Annuitants** | | |
| **Service Retired**** | 8,377 | 7,606 |
| **Disability Retired** | 667 | 615 |
| **Survivors** | 416 | 376 |
| **Total Annuitants** | **9,460** | **8,597** |
| **Average Monthly Benefit, All Annuitants** | $5,137 | $4,906 |
| **Number of New Service Retirees** | 839 | 980 |
| **Average Monthly Benefit, New Service Retirees** | $6,049 | $5,888 |

*Note: Totals may not agree due to rounding. The above figures exclude 551 legal order payees currently in receipt of benefit payments as of June 30, 2023.*

**Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.*

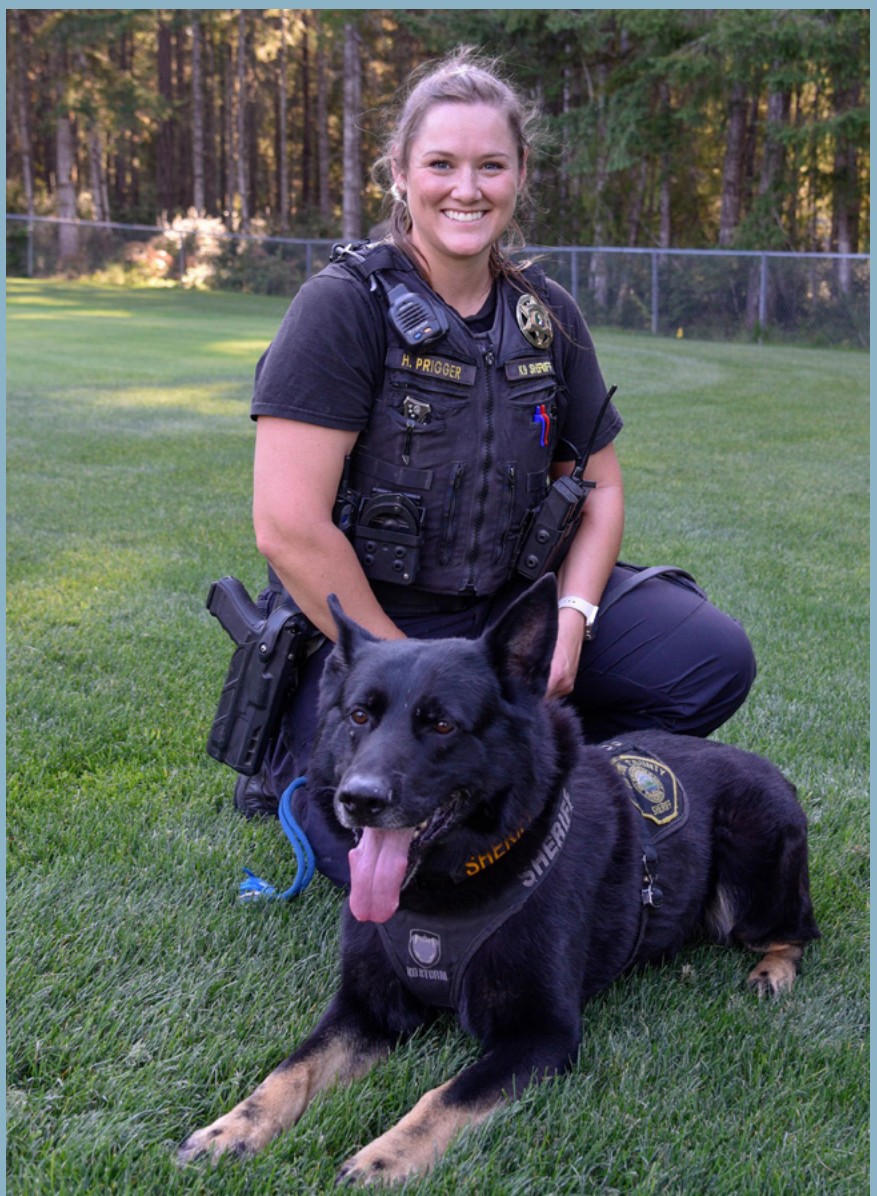
***Includes retirements from active and terminated with vested status.*

| Retirement Age and Service | 2023 | 2022 |
|---|---|---|
| **All Retired Law Enforcement Officers** | | |
| **Average Entry Age** | 31.7 | 31.8 |
| **Average Age at Retirement** | 55.9 | 55.9 |
| **Average Service at Retirement** | 24.1 | 24.1 |
| **All Retired Fire Fighters** | | |
| **Average Entry Age** | 31.0 | 31.1 |
| **Average Age at Retirement** | 57.2 | 57.2 |
| **Average Service at Retirement** | 26.2 | 26.1 |
| **All Members who Retired in the Last Year** *(With 21-25 Years of Service)* | | |
| **Average Monthly Final Average Salary** | **$10,804** | **$10,244** |

*Note: The average entry age was approximated as the difference between the age at retirement and years of service at retirement.*

SECTION IV.

# APPENDIX



# Actuarial Assumptions or Methods

To calculate the contribution rates necessary to pre-fund a plan's benefits, an actuary uses an actuarial cost method, a funding policy, economic assumptions, and demographic assumptions. The actuary may also use an asset valuation method other than market value. The section below lists the methods and assumptions that change regularly or are new since the last AVR. Please see our Actuarial Methods webpage for descriptions of the actuarial cost methods and asset valuation method we use for this valuation, and please see our Actuarial Assumptions webpage for descriptions of all remaining assumptions.

## CHANGES IN METHODS AND ASSUMPTIONS SINCE THE LAST VALUATION

- We updated our valuation programming to reflect recent high levels of inflation.
  - As discussed on our webpage, annuitants in LEOFF Plan 2 receive annual COLAs up to a cap of 3.00%. Excess inflation above 3.00% is "banked" for future use when inflation is less than 3% for those annuitants.

    The prescribed future inflation assumption is 2.75%; however, the current annuitants have experienced high levels of banked inflation with some annuitants currently banking as much as approximately 10% during Calendar Years 2021 through 2023. See link for historical inflation.

    To value the current levels of COLA "banking" we modeled all annuitants in the applicable plans, as of our measurement date, will receive a 3.00% COLA for the duration of their expected lifetime. This represents our expectation of future inflation to be 2.75% combined with the current levels of "banking". No change in valuation software programming was made for members not currently in receipt of retirement benefits since the COLA banking only applies to members in receipt of benefits.
- We updated our valuation to reflect legislation passed during the 2023 Legislative Session.
  - SHB 1007 (Chapter 18, Laws of 2023) expands the definition of veteran to include individuals who received an Expeditionary medal (or badge) during any armed conflict and expands eligibility for IMSC. We study rates of IMSC during our demographic experience study with the next study scheduled to begin during FY 2025. To reflect this change in our valuation in the interim, we relied on the prepared fiscal note during the 2023 Legislative Session.
- We updated the minimum contribution rate calculation for LEOFF 2 to reflect changes enacted during the 2022 Legislative Session. We determined the minimum contribution rates calculated will be offset by 0.75% through the 2033 valuation. We assume the last biennium of rate offsets would be the 2035-37 Biennium.
  - SHB 1701 (Chapter 125, Laws of 2022) directed an offset to minimum contribution rates to go into effect July 1, 2025 (see Section 8) in order for the minimum contribution rates to not increase for current LEOFF 2 members as a result of the benefit improvements contained within the bill.
  - To determine the increase to the minimum contribution rates due to the benefit increases, we relied on our 2021 AVR when the new benefit improvements were first programmed. The entry age normal cost contribution rates, used to inform the LEOFF 2 minimum rates, increased by 0.75% due to the benefit improvements under this bill. Therefore, we selected a 0.75% offset to be applied to the base minimum contribution rates.

- This offset was intended to reduce future costs for members participating in LEOFF Plan 2 at the time these benefit improvements were enacted, approximately the end of FY 2022. To determine how long this offset should be applied, we relied on the remaining average future working lifetime of these members as of our June 30, 2021, measurement date, approximately 15 years. We will include the 0.75% offset in our rate calculations used to inform contribution rate adoption through the 2035-37 Biennium. This represents 15 years of contribution rate collection from the effective date of the benefit improvement.

### OTHER KEY CONSIDERATIONS

We considered but did not make changes to our model to reflect anticipated increases to salaries in LEOFF due to the 2023-25 Collective Bargaining Agreements. We will continue to monitor short-term salary increases and may make temporary, one-time assumption changes when deemed necessary.

## LDROM Methodology

To select the discount rate for the LDROM we relied on U.S. Treasury yields as of our measurement date. ASOP 4 directs the use of discount rates based on low-default-risk fixed income securities with cash flows that are reasonably consistent with the timing of benefits that are expected to be paid in the future. We selected U.S. Treasury yields as the underlying basis for the discount rate for this measurement because they represent low-default fixed income securities, and we believe they are commonly understood by our readers.

To calculate a discount rate that is reasonably consistent with the timing of benefits expected to be paid in the future for the plan, we projected future annual benefit payments and determined a corresponding annual discount rate based on linear interpolation of the U.S. Treasury yield rates. We used these annual rates to discount the future payments to our measurement date of June 30, 2023. We then calculated a single discount rate applied to all future cashflows that would provide the same present value of future benefits. Under this approach the state's open plans (including LEOFF Plan 2) have a LDROM discount rate of 3.9%.

## Comments on Valuation Model

As required under ASOP No. 56 – *Modeling*, we share the following comments related to our reliance on the ProVal® software developed by Winklevoss Technologies.

- We understand this software model was primarily created for use by actuaries when performing valuations and projections of pension and retiree medical plans. The use of the model for this analysis is appropriate given its intended purpose.
- To assess the general operation of the model, we reviewed the output for reasonableness. This includes comparing the results to our simplified estimates done in Microsoft Excel and examining sample lives to confirm the programming is working as intended. We are not aware of any known weaknesses or limitations of the model that have a material impact on the results.
- The Board hires auditors to independently review and replicate the results of rate-setting valuations. This process provides an additional reasonableness check of the model output.

Additionally, we considered how the use of different inputs to the model (e.g., data/assumptions/provisions) produce different results and evaluated the relative impacts to our expectations. This allows us to gain a deeper knowledge of the model's important dependencies and major sensitivities.

# Summary of Plan Provisions

The summary of key plan provisions used in the actuarial valuation are provided in two sets of tables. The following table contains plan provisions that can change frequently while the provisions that change less frequently can be found on our Summary of Plan Provisions webpage.

This table and those on our website present high-level summaries and are not meant to be exhaustive lists. For complete details of plan provisions, please refer to the statutes governing the retirement systems or contact the plan administrator (DRS). In the unlikely event that information contained in these summary tables conflicts with state law, the law takes precedence.

| Summary of Frequently Changing Plan Provisions | |
|---|---|
| | **Plan 2** |
| **COLA** | Lesser of CPI* or 3% |
| **Material Plan Provision Changes Since Last Valuation** | Reduced Saving Fund Regular Interest (WAC 415-02-150)<br>Modified the Definition of "Veteran" (C 18, L 23) & (C 146, L 24)<br>Modified Death Benefits, Definition of "Firefighter," Overpayment Management, & Disability Benefits (C 304, L 24) |
| **Significant Plan Provisions Not Included in This Valuation** | None |

**CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma- Bellevue, WA - All Items.*

SECTION V.

# RESOURCES

The Office of the State Actuary's Website

Our website contains additional information and educational material not included in this report. The site also contains an archive of prior Actuarial Valuation Reports and other recent studies that OSA has produced. The following is a list of materials found on our website that could be useful to the reader.

Glossary

Definitions for frequently used actuarial and pension terms.

Age Distributions

Tables summarizing valuation statistics by system, plan, and member/annuitant age as of the latest rate-setting valuation.

Historical Data

Tables summarizing valuation statistics by retirement system and valuation period.

Prior Actuarial Valuation Reports

Archive of valuations over the past several years.

2023 Economic Experience Study

Report examining the long-term economic assumptions.

2023 Report on Financial Condition

Presentation examining the financial health of the retirement systems.

2013-2018 Demographic Experience Study

Most recent report examining demographic behavior within each of the retirement systems.

Risk Assessment

Information examining the effect of unexpected experience on the retirement systems.

Commentary on Risk

Educational information on the risks inherent in our actuarial measurements and how these measurements could vary under different circumstances.

Contribution Rate Projections

Forecasts for future contribution rates based on projected assets and liabilities.

Interactive Reports

Set of reports displaying funded status and projected benefit payments as of the latest rate-setting valuation.

Pension Education

Educational material on Washington State pension plans and the work produced by OSA.

# ACTUARIAL VALUATION REPORT

## Law Enforcement Officers' and Firefighters' Plan 2 Retirement Board

Office of the State Actuary
*"Supporting financial security for generations."*