

# WASHINGTON STATE Law Enforcement Officers' and Fire Fighters' Plan 2 Retirement Board



## 2007 Actuarial Valuation Report



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**Office of the State Actuary**

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A special thank you to Charles Middleton for the use of his "Fire Fighter Saving Girl" photo.

**Additional assistance provided by**

Department of Retirement Systems  
Office of the State Treasurer  
Washington State Investment Board

To obtain a copy of this report in alternative format call 360.786.6140 or for TDD 800.635.9993



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# Office of the State Actuary

*"Securing tomorrow's pensions today."*

**Letter of Introduction  
Law Enforcement Officers' and Fire Fighters'  
Retirement System Plan 2  
Actuarial Valuation Report  
As of June 30, 2007  
September 2008**

As required under Chapter 41.45 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 plan year ending June 30, 2007. The report is organized in the following four sections:

- ❖ Summary of Key Results
- ❖ Actuarial Exhibits
- ❖ Participant Data
- ❖ Appendices

The Summary of Key Results section provides a high-level summary of the valuation results for LEOFF 2. The remaining sections of the report provide detailed actuarial asset and liability information and participant data. The Appendices provide a summary of the principal actuarial assumptions and methods, summary of the major plan provisions, age-service distributions, and additional information to support the analysis of this valuation.

We encourage you to submit any questions you might have concerning this report to our regular address or our e-mail address at [actuary.state@leg.wa.gov](mailto:actuary.state@leg.wa.gov). We also invite you to visit our website, at the address below, for further information regarding the actuarial funding of the Washington State retirement systems.

Sincerely,

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# Summary of Key Results

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# Summary of Key Results

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## Intended Use

The purpose of this report is to develop the contribution rates required to fund the Law Enforcement Officers' and Fire Fighters' Plan 2 (LEOFF 2) retirement system based on the funding policy described in this section. 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.

## Contribution Rates

We determined the member and employer contribution rates as a percentage of salary. The summary table below shows contribution rates along with comparable rates from the previous valuation. See the Actuarial Exhibits section of this report to see how we developed these rates.

| Contribution Rates |       |       |
|--------------------|-------|-------|
|                    | 2007  | 2006  |
| Member             | 7.60% | 7.77% |
| Employer*          | 4.56% | 4.66% |
| Total State        | 3.04% | 3.11% |

*\*Excludes administrative expense rate.*

The minimum contribution rates adopted by the LEOFF 2 Board (the Board) in 2006 take effect in the 2009-11 biennium. The minimum contribution rate equals 90 percent of the normal cost calculated under the Entry Age Normal actuarial cost method.

## Contribution Rate-Setting Cycle

Under current Washington State law, in July of even-numbered years, the Board reviews the basic contribution rates recommended by the Board-retained actuary. These recommendations are based on an actuarial valuation performed on asset, participant, and plan information from odd-numbered years. The Board adopts contribution rates for LEOFF Plan 2 as provided under RCW 41.26.720(1)(a). The rates remain in place for the ensuing biennium, subject to revision by the Legislature.

RCW 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 by the Board. Supplemental contribution rates 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 on-going 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 State's funding policy is found in Chapter 41.45 RCW - Actuarial Funding of State Retirement Systems. It includes the following goals - to:

- Provide a dependable and systematic process for funding the benefits to members and retirees of the Washington State Retirement Systems.
- Continue to fully fund the LEOFF Plan 2 as provided by law.
- Establish long-term employer contribution rates that will remain a relatively predictable proportion of the future state budgets.
- Fund, to the extent feasible, all benefits over the working lives of those members so that the taxpayers who receive the benefit of those members' service pay the cost of those benefits.

The Washington State Investment Board (WSIB) directs the investment of retirement system contributions. RCW 43.33A.110 requires the investment board to maximize the expected investment return on invested contributions while taking a prudent level of risk.

## Comments on 2007 Results

Short-term actuarial gains or losses occur when actual economic and demographic experience differs from our long-term assumptions. Actuarial gains will reduce contribution rates; actuarial losses will increase contribution rates. Under a reasonable set of actuarial assumptions and methods, actuarial gains and losses will offset over long-term experience periods.

Significant changes in plan provisions or actuarial assumptions and methods will impact contribution rates. Significant factors that impacted the results of this valuation include the following:

- The actual rate of investment return for the plan year exceeded the assumed rate of 8 percent. The actual, annualized investment return on the market value of assets was 22.71 percent (time-weighted). The actual rate of investment return on the actuarial value of assets for the plan year also exceeded the assumed rate of 8 percent for LEOFF 2.
- OSA performed the 2001-2006 Experience Study (as required under RCW 41.45.090). The demographic assumptions used in this valuation reflect the results of that experience study.
- OSA recognized future improvements in mortality at 50 percent of Scale AA (published by the Society of Actuaries) beginning with this valuation.
- Actual salary growth was below assumed growth for the period.

See the Actuarial Gains/Losses table in the Actuarial Exhibits section of this report for detailed gain and loss information.

## Actuarial Liabilities

The table below summarizes key measures of actuarial liability along with the liabilities from last year's valuation. See the Actuarial Exhibits section of this report for additional information on the plan's actuarial liabilities. See the Glossary for a brief explanation of the actuarial terms.

| <b>Actuarial Liabilities</b>              |             |             |
|---|-------------|-------------|
| <i>(Dollars in millions)</i>              | <b>2007</b> | <b>2006</b> |
| Present Value of Fully Projected Benefits | \$6,149     | \$6,004     |
| Unfunded Actuarial Accrued Liability      | N/A         | N/A         |
| Projected Unit Credit Liability           | 3,386       | 3,323       |
| Valuation Interest Rate                   | 8.00%       | 8.00%       |

## Assets

The following table shows the market value of assets and actuarial (or smoothed) value of assets along with approximate rates of investment return. See the Actuarial Exhibits section of this report for additional information on the plan's assets as well as the development of the actuarial value of assets.

| <b>Assets</b>                |             |             |
|------------------------------|-------------|-------------|
| <i>(Dollars in millions)</i> | <b>2007</b> | <b>2006</b> |
| Market Value of Assets       | \$5,185     | \$4,339     |
| Actuarial Value of Assets    | 4,360       | 3,844       |
| Contributions*               | 145         | 168         |
| Disbursements                | 23          | 23          |
| Investment Return            | 723         | 577         |
| Other**                      | 2           | 2           |
| Rate of Return on Assets***  | 16.53%      | 15.76%      |

\*Employee and Employer.

\*\*Includes transfers, restorations, payables, etc.

\*\*\*This is the time-weighted rate of return on the Market Value of Assets. WSIB restated returns for 1993-2005. We use the Actuarial Value of Assets to determine contribution rates.

**Funded Status**

The next table displays the plan's funded status. We used the Projected Unit Credit (PUC) actuarial cost method to report the plan's funded status. This is consistent with governmental accounting standards. The PUC cost method projects future benefits under the plan, using salary growth and other assumptions, and applies the service that has been earned as of the valuation date to determine accrued (earned) liabilities. Comparing the PUC liabilities to the actuarial value of assets provides an appropriate measure of a plan's funded status.

We did not use the PUC cost method to determine contribution requirements for LEOFF Plan 2. See the Glossary for a further explanation of PUC.

| <b>Funded Status</b>                        |             |             |
|---|-------------|-------------|
| <i>(Dollars in millions)</i>                | <b>2007</b> | <b>2006</b> |
| a. Projected Unit Credit Liability          | \$3,386     | \$3,323     |
| b. Actuarial Value of Assets                | 4,360       | 3,844       |
| c. Unfunded Liability (a-b)                 | (974)       | (521)       |
| d. Projected Unit Credit Funded Ratio (b/a) | 129%        | 116%        |

*Totals may not agree due to rounding.*

**Participant Data**

The table below shows a summary of the participant data used in the actuarial valuation for the plan year ending June 30, 2007, along with comparable information from last year's valuation. See the Participant Data section of this report for additional information.

| <b>Participant Data</b>           |             |             |
|-----------------------------------|-------------|-------------|
|                                   | <b>2007</b> | <b>2006</b> |
| <b>Active Members</b>             |             |             |
| Number                            | 16,099      | 15,718      |
| Total Salaries (in millions)      | \$1,234     | \$1,172     |
| Average Annual Salary             | \$76,632    | \$74,562    |
| Average Attained Age              | 41.0        | 40.8        |
| Average Service                   | 12.1        | 11.9        |
| <b>Retirees and Beneficiaries</b> |             |             |
| Number                            | 924         | 779         |
| Average Annual Benefit            | \$23,389    | \$22,321    |
| <b>Terminated Members</b>         |             |             |
| Number Vested                     | 629         | 597         |
| Number "Non-Vested"               | 1,433       | 1,362       |

## Key Assumptions

The following table displays key economic assumptions used in the actuarial valuation. These assumptions remain unchanged from the previous year's valuation. The LEOFF 2 Board adopted changes to the demographic assumptions effective with this valuation. The Experience Study Report, available on OSA's website, discloses all the assumption changes from the last valuation. See the Actuarial Assumptions and Methods in the Appendix for a detailed listing of assumptions used in this valuation.

| <b>Key Assumptions</b>  |       |
|-------------------------|-------|
| Valuation Interest Rate | 8.00% |
| Salary Increase         | 4.50% |
| Inflation               | 3.50% |
| Growth in Membership    | 1.25% |

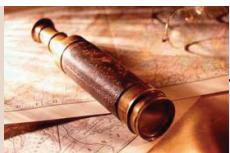


# Actuarial Exhibits

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## Office of the State Actuary

*"Securing tomorrow's pensions today."*

**Actuarial Certification Letter  
Law Enforcement Officers' and Fire Fighters'  
Retirement System Plan 2  
Actuarial Valuation Report  
As of June 30, 2007  
September 2008**

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. The primary purpose of this valuation is to determine contribution requirements for the retirement plan as of the valuation date June 30, 2007. This report should not be used for other purposes.

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

The assumptions used in the valuation for investment return, inflation, salary growth, and membership growth were prescribed by the Legislature. The LEOFF 2 Board adopted updates to the demographic assumptions as part of their review of the 2001 – 2006 Experience Study results. The changes to the demographic assumptions include recognition of future improvements in assumed mortality, based on 50 percent of Scale AA. The Legislature was responsible for the selection of the actuarial cost and asset valuation methods. In my opinion, all methods, assumptions, and calculations are reasonable and are in conformity with generally accepted actuarial principles and standards of practice as of the date of this publication.

The Department of Retirement Systems provided member and beneficiary data to us. We checked the data for reasonableness as appropriate based on the purpose of the valuation. The Washington State Investment Board (WSIB), Department of Retirement Systems, and the State Treasurer provided financial and asset information. An audit of the financial and participant data was not performed. I relied on all the information provided as complete and accurate. In my opinion, this information is adequate and substantially complete for purposes of this valuation.

The asset smoothing method adopted during the 2003 Legislative session (Chapter 11, Laws of 2003, E1) was intended to address the volatility of contribution rates under the aggregate funding method when used in combination with the existing asset allocation



2007 LEOFF 2 Actuarial Valuation Report  
Page 2 of 2

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policy of WSIB. The combination of the current asset smoothing method with any other funding method or asset allocation policy may not be appropriate.

The undersigned, with actuarial credentials, meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

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

## Contribution Rates

### Member and Employer Rate Summary

|                     | 2007  | 2006  |
|---------------------|-------|-------|
| Member              | 7.60% | 7.77% |
| Employer*           | 4.56% | 4.66% |
| State (Normal Cost) | 3.04% | 3.11% |
| State (Plan 1 UAAL) | 0.00% | 0.00% |
| Total State         | 3.04% | 3.11% |

\*Excludes administrative expense rate.

### Development of Employer/State Rates

|   |              |
|---|--------------|
| a. Total Normal Cost                      | 15.20%       |
| b. Employee Normal Cost                   | 7.60%        |
| c. Total Employer/State Normal Cost (a-b) | 7.60%        |
| d. State Normal Cost (20% of a)           | 3.04%        |
| e. Employer Normal Cost (b-d)             | 4.56%        |
| f. Cost to Amortize UAAL                  | 0.00%        |
| g. Total Employer Contribution Rate (e+f) | <u>4.56%</u> |

The state pays 20% of the total normal cost for LEOFF 2.

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**Development of Normal Cost Rates**

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*(Dollars in millions)***1. Calculation of Member Rate**

|  |             |
|--|-------------|
| a. Present Value of Fully Projected Benefits | \$6,149     |
| b. Valuation Assets                          | 4,360       |
| c. Unfunded Fully Projected Benefits (a - b) | <hr/> 1,789 |

## Present Value of Projected Salaries to Current Members (PVS)

|                          |                |
|--------------------------|----------------|
| d. Plan 1 PVS            | N/A            |
| e. Plan 2 PVS            | 15,405         |
| f. Weighted PVS (d + 2e) | <hr/> \$30,811 |

|   |             |
|---|-------------|
| g. Member Normal Cost (c/f)                 | 5.81%       |
| h. Member Minimum Contribution Rate         | 7.60%       |
| i. Member Contribution Rate with Minimum    | 7.60%       |
| j. Change In Plan Provisions (Laws of 2008) | 0.00%       |
| k. Member Contribution Rate (i + j)         | <hr/> 7.60% |

**2. Calculation of Employer Rate**

|  |              |
|--|--------------|
| a. Present Value of Fully Projected Benefits | \$6,149      |
| b. Valuation Assets                          | 4,360        |
| c. Unfunded Benefits (a - b)                 | <hr/> 1,789  |
| d. Present Value of Member Contributions     | 895          |
| e. Employer Responsibility (c - d)           | <hr/> \$895  |
| f. Plan 2 PVS                                | \$15,405     |
| g. Employer Normal Cost (e/f)                | 5.81%        |
| h. Employer Minimum Contribution Rate        | 7.60%        |
| i. Employer Contribution Rate with Minimum   | 7.60%        |
| j. Change In Plan Provisions (Laws of 2008)  | 0.00%        |
| k. Total Employer Contribution Rate (i + j)  | <hr/> 7.60%  |
| l. Employee Contribution Rate*               | 7.60%        |
| m. Employer Contribution Rate (l - n)*       | 4.56%        |
| n. State Contribution Rate (k * 40%)*        | 3.04%        |
| o. Total Contribution Rate (l + m + n)       | <hr/> 15.20% |

*Note: Totals may not agree due to rounding. Minimum Contribution**Rates went into effect for the 2007 Actuarial Valuation.**\*LEOFF 2 total rate: 50% Employee, 30% Employer, 20% State.*

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**Amortization of the Plan 1 Unfunded Actuarial  
Accrued Liability (UAAL)**

| <i>(Dollars in millions)</i>                       | <b>LEOFF 1</b> |
|--|----------------|
| a. Present Value of Fully Projected Benefits       | \$4,358        |
| b. Valuation Assets                                | 5,298          |
| c. Present Value of Future Normal Costs            | 0              |
| d. UAAL (a - b - c)                                | (939)          |
| e. Expected UAAL Contributions to 2009             | 0              |
| f. Remaining UAAL (d - e)                          | (\$939)        |
|  |                |
| g. Amortization Date                               | 6/30/2024      |
| h. Present Value of Projected Salaries beyond 2009 | \$16,131       |
|  |                |
| i. Preliminary Rate (f/h)*                         | (5.82%)        |
| j. Change In Plan Provisions (Laws of 2008)        | 0.00%          |
| k. Contribution Rate to Amortize the UAAL (i+j)*   | (5.82%)        |

*Note: Totals may not agree due to rounding. Minimum Contribution Rates went into effect for the 2007 Actuarial Valuation.*

*\*No LEOFF 1 UAAL contributions are required when the plan is fully funded under current methods and assumptions.*

**Actuarial Liabilities****Present Value of Fully Projected Benefits**

(Dollars in millions)

**Active Members**

|  |                |
|--|----------------|
| Retirement                             | \$5,331        |
| Termination                            | 52             |
| Death                                  | 44             |
| Disability                             | 140            |
| Return of Contributions on Termination | 66             |
| Return of Contributions on Death       | 64             |
| <b>Total Active</b>                    | <b>\$5,697</b> |

**Inactive Members**

|                       |              |
|-----------------------|--------------|
| Terminated            | \$123        |
| Service Retired       | 283          |
| Disability Retired    | 28           |
| Survivors             | 17           |
| <b>Total Inactive</b> | <b>\$452</b> |

|                   |                |
|-------------------|----------------|
| Laws of 2008      | 0              |
| <b>2007 Total</b> | <b>\$6,149</b> |
| <b>2006 Total</b> | <b>\$6,004</b> |

*Note: Totals may not agree due to rounding.***Present Value of Projected Unit Credit (PUC) Benefits\***

(Dollars in millions)

**Active Members**

|  |                |
|--|----------------|
| Retirement                             | \$2,734        |
| Termination                            | 29             |
| Death                                  | 29             |
| Disability                             | 76             |
| Return of Contributions on Termination | 34             |
| Return of Contributions on Death       | 32             |
| <b>Total Active</b>                    | <b>\$2,934</b> |

**Inactive Members**

|                       |              |
|-----------------------|--------------|
| Terminated            | \$123        |
| Service Retired       | 283          |
| Disability Retired    | 28           |
| Survivors             | 17           |
| <b>Total Inactive</b> | <b>\$452</b> |

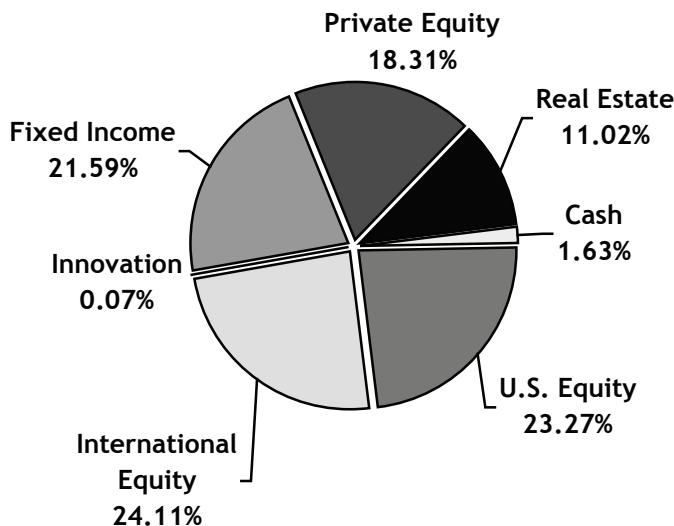
|                   |                |
|-------------------|----------------|
| Laws of 2008      | 0              |
| <b>2007 Total</b> | <b>\$3,386</b> |
| <b>2006 Total</b> | <b>\$3,323</b> |

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

\* Calculated using the PUC cost method. We did not use this method to determine contribution requirements.

## Plan Assets

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



**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, such as infrastructure, commodities, and global equity.

**International Equity:** Shares of 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 which 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 start-up 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.

**U.S. Equity:** Shares of 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.

| Change in Market Value of Assets |              | Calculation of Actuarial Value of Assets |                  |
|----------------------------------|--------------|--|------------------|
| (Dollars in millions)            |              | (Dollars in millions)                    |                  |
| 2006 Market Value                | \$4,339      | a. Market Value at 6/30/2007             | \$5,185          |
| <b>Revenue</b>                   |              |  |                  |
| Contributions                    |              | Deferred Investment Gains and (Losses)   |                  |
| Employee                         | 73           | Plan Year Ending                         | Percent Deferred |
| Employer/State                   | 73           | 6/30/2007                                | 87.50%           |
| Total Contributions              | 145          | 9/30/2006                                | 75.00%           |
| Investment Return                | 723          | 9/30/2005                                | 62.50%           |
| Restorations                     | 2            | 9/30/2004                                | 33.33%           |
| Transfers In                     | 0            | 9/30/2003                                | 37.50%           |
| Miscellaneous                    | 0            | 9/30/2002                                | 25.00%           |
| <b>Total Revenue</b>             | <b>\$869</b> | 9/30/2001                                | N/A              |
| <b>Disbursements</b>             |              |  |                  |
| Withdrawn Annuities              |              | b. Total Deferral                        | \$826            |
| Monthly Benefits                 | 16           | c. Market Value less Deferral (a-b)      | \$4,360          |
| Refunds                          | 6            | d. 70% of Market Value of Assets         | \$3,630          |
| Total Benefits                   | 23           | e. 130% of Market Value of Assets        | \$6,741          |
| Transfers Out                    | 0            | f. Actuarial Value of Assets*            | <b>\$4,360</b>   |
| Expenses                         | 0            |  |                  |
| <b>Total Disbursements</b>       | <b>\$23</b>  |  |                  |
| <b>Payables</b>                  | <b>\$0</b>   |  |                  |
| 2007 Market Value                | \$5,185      |  |                  |
| 2007 Actuarial Value             | \$4,360      |  |                  |
| <b>Ratio (AV/MV)</b>             | <b>84%</b>   |  |                  |

Note: Totals may not agree due to rounding.

*Note: Totals may not agree due to rounding.*  
*\*Actuarial Value of Assets can never be less than 70% or greater than 130% of the market value of assets.*

| Investment Gains and (Losses) for Prior Year      |  |         |
|---|--|---------|
| (Dollars in Millions)                             |  |         |
| a. 2006 Market Value (at WSIB)                    |  | \$4,328 |
| b. Total Cash Flow                                |  | 123     |
| c. 2007 Market Value (at WSIB)                    |  | 5,173   |
| d. Actual return (c-b-a)                          |  | \$722   |
| e. Weighted asset amount                          |  | \$4,352 |
| f. Expected return (8% x e)                       |  | 259     |
| g. Investment Gain/(Loss)<br>for Prior Year (d-f) |  | 464     |
| h. Dollar-weighted rate of return*                |  | 16.61%  |

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

*\*For the 2007 valuation the interest rates were not annualized. They reflect the actual valuation period of 9 months.*

## Funded Status

We report a plan's funded status by comparing the plan's current assets to the present value of earned pensions of its members. A plan's funded status can vary significantly, depending on the assumptions and methods used to determine the value of the plan's assets and liabilities. For this valuation report, we present two funded status measures.

The first measure compares the Actuarial Value of Assets (AVA) to the PUC liabilities calculated using a long-term interest assumption. The second measure compares the Market Value of Assets (MVA) to the PUC liabilities calculated using a short-term interest assumption. The next sections describe these measures in more detail and display the resulting funded status for the plan.

### *Funded Status on an Actuarial Value Basis*

The funded status on an actuarial value basis is the ratio of the AVA to the PUC liability calculated using the 8 percent valuation interest rate assumption. We assume the plan is on-going and, therefore, we use the same long-term assumptions to develop the assets and liabilities as we used for determining the contribution requirements of the plan. We don't expect the assumptions to match actual experience over short-term periods. However, we do expect these assumptions to reasonably approximate average annual experience over long-term periods. This measure of funded status is consistent with the State's current funding policy and financing plan for future retirement benefits.

We use an asset valuation method to determine the AVA. This method smoothes the inherent volatility in the MVA by deferring a portion of annual investment gains or losses for a certain number of years. Investment gains and losses occur when the annual return on investments varies from the long-term assumed rate of 8 percent. The AVA provides a more stable measure of the plan's assets on an on-going basis.

We use the PUC actuarial cost method to determine the present value of earned pensions. The PUC liabilities are actuarial liabilities based on members' earned service credit as of the valuation date. They include future assumed salary increases and reflect future service credits for determining benefit eligibility. The PUC liabilities are discounted to the valuation date using the valuation interest rate to determine the present value (today's value). The valuation interest rate is consistent with the long-term expected return on invested contributions.

The following table displays the funded status on an actuarial value basis for LEOFF 2.

**Funded Status on an Actuarial Value Basis\***

| <i>(Dollars in millions)</i>    |                  |
|---------------------------------|------------------|
| Projected Unit Credit Liability | \$3,386          |
| Actuarial Value of Assets       | \$4,360          |
| Unfunded Liability              | ( <b>\$974</b> ) |

**Funded Ratio:**

|                |             |
|----------------|-------------|
| <b>2007 **</b> | <b>129%</b> |
| 2006 **        | 116%        |
| 2005 **        | 114%        |
| 2004           | 117%        |
| 2003           | 125%        |
| 2002           | 137%        |
| 2001 **        | 154%        |
| 2000 **        | 161%        |
| 1999           | 154%        |
| 1998           | 160%        |
| 1997 **        | 155%        |
| 1996           | 130%        |
| 1995           | 126%        |
| 1994 **        | 124%        |
| 1993           | 127%        |
| 1992           | 128%        |
| 1991           | 154%        |
| 1990           | 153%        |
| 1989 **        | 158%        |
| 1988           | 153%        |
| 1987           | 157%        |
| 1986           | 142%        |

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

*\*Liabilities have been valued using an interest rate of 8%.*

*\*\*Assumptions changed.*

The present value of actuarial liabilities is sensitive to the interest rate assumption. The following tables show the sensitivity of the funded status to the interest rate assumption. We calculated liabilities using a 7 percent and 9 percent interest rate.

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**Funded Status Using a 7% Interest Rate  
Assumption**

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| <i>(Dollars in millions)</i>    |                |
|---------------------------------|----------------|
| Projected Unit Credit Liability | \$4,077        |
| Actuarial Value of Assets       | \$4,360        |
| Unfunded Liability              | <u>(\$283)</u> |

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Funded Ratio:

| 2007   | 107% |
|--|------|
| <i>Note: Totals may not agree due to rounding.</i> |      |

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**Funded Status Using a 9% Interest Rate  
Assumption**

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| <i>(Dollars in millions)</i>    |                  |
|---------------------------------|------------------|
| Projected Unit Credit Liability | \$2,824          |
| Actuarial Value of Assets       | \$4,360          |
| Unfunded Liability              | <u>(\$1,535)</u> |

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Funded Ratio:

| 2007   | 154% |
|--|------|
| <i>Note: Totals may not agree due to rounding.</i> |      |

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**Funded Status on a Market Value Basis**

The funded status on a market value basis is the ratio of the MVA to the PUC liability calculated using a 5.5 percent interest rate assumption. The funded status on a market value basis provides a measure of the plan's health if the plan is "settled" or "immunized" on the valuation date. Immunizing a pension plan means attaching assets to liabilities so the assets maturing each year match the expected pension payments due from the plan each year. A plan can be settled by purchasing annuities on the open market for each member, or immunized by investing the assets in bonds with payment streams that match the expected benefit payments.

Because LEOFF 2 is open and on-going, we only present the market value funded status for the closed LEOFF Plan 1. Although LEOFF 1 is closed to new members, it is not settled and has not been immunized. However, there is an opportunity to immunize the plan in the future. LEOFF 1 is considered an on-going plan because current annuitants continue to receive their benefits from the retirement trust fund, and current active members continue to accrue benefits under the plan. However, because the plan is closed to new members, the future benefit payments are more predictable, have a shorter duration, and would be easier to immunize. The decision to settle or immunize LEOFF 1 is complex and would require additional actuarial analysis and information that is outside the scope of this report.

The following table displays the market value funded status for LEOFF 1 as described above.

| <b>Funded Status on a Market Value Basis* - LEOFF 1 Only</b> |      |         |
|--|------|---------|
| <i>(Dollars in millions)</i>                                 |      |         |
| Projected Unit Credit Liability                              |      | \$5,634 |
| Market Value of Assets                                       |      | \$6,416 |
| Unfunded Liability   |      | (\$783) |
| Funded Ratio:  |      |         |
|  | 2007 | 114%    |
|  | 2006 | 102%    |
|  | 2005 | 94%     |
|  | 2004 | 82%     |

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

*\*Liabilities have been valued using an interest rate of 5.5%.*

*The 5.5% interest rate approximates the "risk-free" rate of return on assets. We did not use this method to determine contribution requirements.*

Both funded status measures vary based on the measurement (valuation) date and the market conditions on that date. The market value measure, however, is more volatile because the asset value has no smoothing and the ability to immunize the plan depends on current bond and annuity purchase rates.

## Actuarial Gains/Losses

| Change in State Contribution Rate by Source |                |
|---|----------------|
| <b>2006 Contribution Rate</b>               | (1.40%)        |
| Economic Gains/Losses                       | (1.60%)        |
| Demographic Gains/Losses                    | (0.06%)        |
| Present Value Future Salaries Gains/Losses  | (0.11%)        |
| Experience Study Gains/Losses               | 0.04%          |
| PEBB Premiums for Survivors                 | 0.01%          |
| Other Gains/Losses                          | (0.38%)        |
| Total Change                                | (2.10%)        |
| <b>2007 Preliminary Contribution Rate</b>   | <b>(3.50%)</b> |
| Laws of 2008                                | 0.00%          |
| Increase from Applied Rate Floor            | 0.72%          |
| <b>2007 Adjusted Contribution Rate</b>      | <b>(2.78%)</b> |

*The Contribution Rate is the State's portion for Plan 2  
(20% of the Normal Cost) plus the UAAL rate for Plan 1.*

| Change in State Normal Cost Rate by Source |              |
|--|--------------|
| <b>2006 Normal Cost</b>                    | <b>3.11%</b> |
| Economic Gains/Losses                      | (0.30%)      |
| Assets                                     | (0.22%)      |
| Salaries                                   | (0.08%)      |
| Growth                                     | 0.00%        |
| Demographic Gains/Losses                   | (0.03%)      |
| Termination/Return to Work                 | (0.01%)      |
| Retirement                                 | (0.02%)      |
| Present Value Future Salaries Gains/Losses | (0.12%)      |
| Experience Study Change Gains/Losses       | (0.13%)      |
| PEBB Premiums for Survivors                | 0.01%        |
| Total Other Gains/Losses                   | (0.22%)      |
| Plan Change Gains/Losses                   | 0.01%        |
| Method Change Gains/Losses                 | (0.19%)      |
| Assumption Change Gains/Losses             | 0.00%        |
| Miscellaneous Change Gains/Losses          | (0.04%)      |
| Total Change                               | (0.79%)      |
| <b>2007 Preliminary Normal Cost</b>        | <b>2.32%</b> |
| Laws of 2008                               | 0.00%        |
| Increase from Applied Rate Floor           | 0.72%        |
| <b>2007 Adjusted Normal Cost</b>           | <b>3.04%</b> |

*The Normal Cost Rate is the State's portion only (20% of the Plan 2 Normal Cost).*

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**Change in State UAAL Rate by Source**

|  |                |
|--|----------------|
| <b>2006 UAAL Rate</b>                      | (4.51%)        |
| Economic Gains/Losses                      | (1.30%)        |
| Assets                                     | (1.32%)        |
| Salaries                                   | (0.03%)        |
| Inflation (CPI)                            | 0.05%          |
| Demographic Gains/Losses                   | (0.03%)        |
| Termination/Return to Work                 | 0.00%          |
| Retirement                                 | (0.03%)        |
| Present Value Future Salaries Gains/Losses | 0.01%          |
| Experience Study Change Gains/Losses       | 0.17%          |
| Total Other Gains/Losses                   | (0.16%)        |
| Plan Change Gains/Losses                   | 0.00%          |
| Method Change Gains/Losses                 | (0.00%)        |
| Assumption Change Gains/Losses             | 0.00%          |
| Miscellaneous Change Gains/Losses          | (0.16%)        |
| Total Change                               | (1.31%)        |
| <b>2007 Preliminary UAAL Rate</b>          | (5.82%)        |
| Laws of 2008                               | 0.00%          |
| Increase from Applied Rate Floor           | N/A            |
| <b>2007 Adjusted UAAL Rate</b>             | <b>(5.82%)</b> |

*LEOFF 1 has a surplus of assets over liabilities, so no UAAL rate is currently payable.*

## Effect of Plan, Assumption, and Method Changes

In addition to experience gains or losses, significant changes in plan provisions or actuarial assumptions or methods will also impact contribution rates.

### ***Plan Changes:***

- LEOFF 2 Alternate Revenue (Chapter 99, Laws of 2008).

### ***Assumption Changes:***

- Projected improvements in mortality.
- Updated demographic assumptions as a result of the 2001-2006 Experience Study. For details of the analysis behind the changes see the experience study report.

### ***Method Changes:***

- We removed competing decrements in our valuation software.
- We changed the method for calculating final average salaries.

### ***Effect of Changes on the Current Valuation:***

The following table shows the effect of the above changes on the current actuarial valuation results.

| <b>Effect of Plan, Assumption, and Method Changes</b>  |              |
|--|--------------|
| <b>Before Changes</b>  |              |
| Present Value Fully Projected Benefits   | \$6,407      |
| Present Value Projected Unit Credit Benefits   | 3,616        |
| Actuarial Value of Assets  | 4,360        |
| Unfunded Liability   | (744)        |
| <b>Employer Contribution Rate</b>  | <b>4.26%</b> |
| <b>After Changes</b>   |              |
| Present Value Fully Projected Benefits   | \$6,149      |
| Present Value Projected Unit Credit Benefits   | 3,386        |
| Actuarial Value of Assets  | 4,360        |
| Unfunded Liability   | (974)        |
| <b>Employer Contribution Rate</b>  | <b>4.56%</b> |
| <b>Increase/(Decrease) in Rate</b>   | <b>0.30%</b> |
| <i>Before and after changes include actuarial gains and losses for the year ending 6/30/2007.</i>                |              |
| <i>After changes includes Minimum Contribution Rates that went into effect for the 2007 Actuarial Valuation.</i> |              |
| <i>The LEOFF contribution rate is the Employer's portion only (30% of the Plan 2 Normal Cost).</i>               |              |



# Participant Data

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# Participant Data

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## Overview of System Membership

LEOFF 2 - Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (Chapter 41.26 RCW).

Membership includes fire fighters; 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                | 104           |
| Higher Education              | 104           |
| Community Colleges            | 0             |
| K-12                          | 0             |
| Counties                      | 2,845         |
| County Sub Divisions          | 45            |
| First Class Cities            | 4,818         |
| Other Cities                  | 4,990         |
| Ports                         | 179           |
| Education Service District    | 0             |
| Fire Districts                | 3,014         |
| Public Utility District       | 0             |
| Water Districts               | 0             |
| Energy Northwest              | 0             |
| Unions                        | 0             |
| <b>TOTAL</b>                  | <b>16,099</b> |

The following table summarizes participant data changes from last year's valuation to the current year's valuation. The participant data is divided into two main categories:

- Actives - members accruing benefits in the plan.
- Annuitants - members and beneficiaries receiving benefits from the plan.

| <b>Reconciliation of Participant Data</b> |  |               |
|---|--|---------------|
| <b>2006 Actives</b>                       |  | 15,718        |
| Transfers                                 |  | 0             |
| Hires/Rehires                             |  | 815           |
| New Retirees                              |  | (101)         |
| Deaths                                    |  | (7)           |
| Terminations                              |  | (326)         |
| <b>2007 Actives</b>                       |  | <b>16,099</b> |
| <br><b>2006 Annuitants</b>                |  | 779           |
| New Retirees                              |  | 142           |
| Annuitant Deaths                          |  | (6)           |
| New Survivors                             |  | 11            |
| Other                                     |  | (2)           |
| <b>2007 Annuitants</b>                    |  | <b>924</b>    |
| <br><b>Ratio of Actives to Annuitants</b> |  | <b>17.42</b>  |

**Summary of Plan Participants**

| <b>Summary of Plan Participants</b>             |             |             |
|---|-------------|-------------|
|   | <b>2007</b> | <b>2006</b> |
| <b>Active Members</b>                           |             |             |
| Number  | 16,099      | 15,718      |
| Total Salaries (millions)                       | \$1,234     | \$1,172     |
| Average Age                                     | 41.0        | 40.8        |
| Average Service                                 | 12.1        | 11.9        |
| Average Salary                                  | \$76,632    | \$74,562    |
| <b>Terminated Members</b>                       |             |             |
| Number Vested                                   | 629         | 597         |
| Number "Non-Vested"                             | 1,433       | 1,362       |
| <b>Retirees</b>                                 |             |             |
| Number of Retirees (All)                        | 924         | 779         |
| Average Monthly Benefit, All Retirees           | \$1,949     | \$1,860     |
| Number of New "Service Retirees"                | 124         | 165         |
| Average Monthly Benefit, New "Service Retirees" | \$2,516     | \$2,344     |

# Appendices

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# Appendices

## Actuarial Methods and Assumptions

### *Actuarial Cost Methods*

The Aggregate Cost Method is used to determine the normal cost for retirement, termination, and ancillary benefits. Under this method, the unfunded actuarial present value of fully projected benefits is amortized over the future payroll of the active group. The entire contribution is considered normal cost and no Unfunded Actuarial Accrued Liability (UAAL) exists.

The Projected Unit Credit (PUC) cost method is used to report the plan's funded status and is consistent with governmental accounting standards. The PUC cost method projects future benefits under the plan, using salary growth and other assumptions, and applies the service earned as of the valuation date to determine accrued liabilities. Comparing the PUC liabilities to the assets currently held in the trust provides an appropriate measure of a plan's funded status. See the Glossary for a further explanation of the PUC cost method.

### *Asset Valuation Method*

We calculate the actuarial value of assets using an adjusted market value method by starting with the market value of assets. For subsequent years the actuarial value of assets is determined by adjusting the market value of assets to reflect the difference between the actual investment return and the expected investment return during each of the last eight years or, if fewer, the completed years since adoption, at the following rates per year:

| Annual Gain/Loss |                  |                    |
|------------------|------------------|--------------------|
| Rate of Return   | Smoothing Period | Annual Recognition |
| 15% and up       | 8 years          | 12.50%             |
| 14-15%           | 7 years          | 14.29%             |
| 13-14%           | 6 years          | 16.67%             |
| 12-13%           | 5 years          | 20.00%             |
| 11-12%           | 4 years          | 25.00%             |
| 10-11%           | 3 years          | 33.33%             |
| 9-10%            | 2 years          | 50.00%             |
| 7-9%             | 1 year           | 100.00%            |
| 6-7%             | 2 years          | 50.00%             |
| 5-6%             | 3 years          | 33.33%             |
| 4-5%             | 4 years          | 25.00%             |
| 3-4%             | 5 years          | 20.00%             |
| 2-3%             | 6 years          | 16.67%             |
| 1-2%             | 7 years          | 14.29%             |
| 1% and lower     | 8 years          | 12.50%             |

Additionally, the actuarial value of assets may not exceed 130 percent nor drop below 70 percent of the market value of assets.

***Changes in Methods and Assumptions Since the Last Valuation***

We implemented two method changes since the last valuation. We removed competing decrements from our valuation software and changed how we calculate final average salaries.

We performed an experience study of the plan for the period 2001-2006. As a result of this study, we updated the demographic assumptions, including recognition of future improvements in mortality. For a full description of the assumption changes see the Experience Study Report.

***Economic Assumptions***

| <b>Economic Assumptions</b>                                |       |
|--|-------|
| Annual Growth in Membership                                | 1.25% |
| Interest on Member Contributions <sup>1</sup>              | 5.50% |
| Return on Invested Assets <sup>2</sup>                     | 8.00% |
| Inflation <sup>3</sup>                                     | 3.50% |
| General Salary Increases (includes inflation) <sup>4</sup> | 4.50% |
| Annual COLA <sup>5</sup>                                   | 3.00% |

<sup>1</sup>*Annual rate, compounded quarterly.*

<sup>2</sup>*Annual rate, compounded annually.*

<sup>3</sup>*Based on the CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.*

<sup>4</sup>*Excludes longevity, merit or step increases that usually apply to members in the early part of their careers.*

<sup>5</sup>*Based on the CPI (3% maximum).*

**Demographic Assumptions**

| RP-2000 Mortality Rates<br>Combined Healthy Table |          |          | 50% Scale AA |          |          |
|---|----------|----------|--------------|----------|----------|
| Age   | Male     | Female   | Age          | Male     | Female   |
| 20  | 0.000345 | 0.000191 | 20           | 0.009500 | 0.008000 |
| 21  | 0.000357 | 0.000192 | 21           | 0.009000 | 0.008500 |
| 22  | 0.000366 | 0.000194 | 22           | 0.008500 | 0.008500 |
| 23  | 0.000373 | 0.000197 | 23           | 0.007500 | 0.008000 |
| 24  | 0.000376 | 0.000201 | 24           | 0.006500 | 0.007500 |
| 25  | 0.000376 | 0.000207 | 25           | 0.005000 | 0.007000 |
| 26  | 0.000378 | 0.000214 | 26           | 0.003000 | 0.006000 |
| 27  | 0.000382 | 0.000223 | 27           | 0.002500 | 0.006000 |
| 28  | 0.000393 | 0.000235 | 28           | 0.002500 | 0.006000 |
| 29  | 0.000412 | 0.000248 | 29           | 0.002500 | 0.006000 |
| 30  | 0.000444 | 0.000264 | 30           | 0.002500 | 0.005000 |
| 31  | 0.000499 | 0.000307 | 31           | 0.002500 | 0.004000 |
| 32  | 0.000562 | 0.000350 | 32           | 0.002500 | 0.004000 |
| 33  | 0.000631 | 0.000394 | 33           | 0.002500 | 0.004500 |
| 34  | 0.000702 | 0.000435 | 34           | 0.002500 | 0.005000 |
| 35  | 0.000773 | 0.000475 | 35           | 0.002500 | 0.005500 |
| 36  | 0.000841 | 0.000514 | 36           | 0.002500 | 0.006000 |
| 37  | 0.000904 | 0.000554 | 37           | 0.002500 | 0.006500 |
| 38  | 0.000964 | 0.000598 | 38           | 0.003000 | 0.007000 |
| 39  | 0.001021 | 0.000648 | 39           | 0.003500 | 0.007500 |
| 40  | 0.001079 | 0.000706 | 40           | 0.004000 | 0.007500 |
| 41  | 0.001142 | 0.000774 | 41           | 0.004500 | 0.007500 |
| 42  | 0.001215 | 0.000852 | 42           | 0.005000 | 0.007500 |
| 43  | 0.001299 | 0.000937 | 43           | 0.005500 | 0.007500 |
| 44  | 0.001397 | 0.001029 | 44           | 0.006000 | 0.007500 |
| 45  | 0.001508 | 0.001124 | 45           | 0.006500 | 0.008000 |
| 46  | 0.001616 | 0.001223 | 46           | 0.007000 | 0.008500 |
| 47  | 0.001734 | 0.001326 | 47           | 0.007500 | 0.009000 |
| 48  | 0.001860 | 0.001434 | 48           | 0.008000 | 0.009000 |
| 49  | 0.001995 | 0.001550 | 49           | 0.008500 | 0.009000 |
| 50  | 0.002138 | 0.001676 | 50           | 0.009000 | 0.008500 |
| 51  | 0.002449 | 0.001852 | 51           | 0.009500 | 0.008000 |
| 52  | 0.002667 | 0.002018 | 52           | 0.010000 | 0.007000 |
| 53  | 0.002916 | 0.002207 | 53           | 0.010000 | 0.006000 |
| 54  | 0.003196 | 0.002424 | 54           | 0.010000 | 0.005000 |
| 55  | 0.003624 | 0.002717 | 55           | 0.009500 | 0.004000 |
| 56  | 0.004200 | 0.003090 | 56           | 0.009000 | 0.003000 |
| 57  | 0.004693 | 0.003478 | 57           | 0.008500 | 0.002500 |
| 58  | 0.005273 | 0.003923 | 58           | 0.008000 | 0.002500 |
| 59  | 0.005945 | 0.004441 | 59           | 0.008000 | 0.002500 |
| 60  | 0.006747 | 0.005055 | 60           | 0.008000 | 0.002500 |
| 61  | 0.007676 | 0.005814 | 61           | 0.007500 | 0.002500 |
| 62  | 0.008757 | 0.006657 | 62           | 0.007500 | 0.002500 |
| 63  | 0.010012 | 0.007648 | 63           | 0.007000 | 0.002500 |
| 64  | 0.011280 | 0.008619 | 64           | 0.007000 | 0.002500 |
| 65  | 0.012737 | 0.009706 | 65           | 0.007000 | 0.002500 |
| 66  | 0.014409 | 0.010954 | 66           | 0.006500 | 0.002500 |
| 67  | 0.016075 | 0.012163 | 67           | 0.006500 | 0.002500 |
| 68  | 0.017871 | 0.013445 | 68           | 0.007000 | 0.002500 |
| 69  | 0.019802 | 0.014860 | 69           | 0.007000 | 0.002500 |

| RP-2000 Mortality Rates<br>Combined Healthy Table |          |          | 50% Scale AA |          |          |
|---|----------|----------|--------------|----------|----------|
| Age   | Male     | Female   | Age          | Male     | Female   |
| 70  | 0.022206 | 0.016742 | 70           | 0.007500 | 0.002500 |
| 71  | 0.024570 | 0.018579 | 71           | 0.007500 | 0.003000 |
| 72  | 0.027281 | 0.020665 | 72           | 0.007500 | 0.003000 |
| 73  | 0.030387 | 0.022970 | 73           | 0.007500 | 0.003500 |
| 74  | 0.033900 | 0.025458 | 74           | 0.007500 | 0.003500 |
| 75  | 0.037834 | 0.028106 | 75           | 0.007000 | 0.004000 |
| 76  | 0.042169 | 0.030966 | 76           | 0.007000 | 0.004000 |
| 77  | 0.046906 | 0.034105 | 77           | 0.006500 | 0.003500 |
| 78  | 0.052123 | 0.037595 | 78           | 0.006000 | 0.003500 |
| 79  | 0.057927 | 0.041506 | 79           | 0.005500 | 0.003500 |
| 80  | 0.064368 | 0.045879 | 80           | 0.005000 | 0.003500 |
| 81  | 0.072041 | 0.050780 | 81           | 0.004500 | 0.003500 |
| 82  | 0.080486 | 0.056294 | 82           | 0.004000 | 0.003500 |
| 83  | 0.089718 | 0.062506 | 83           | 0.004000 | 0.003500 |
| 84  | 0.099779 | 0.069517 | 84           | 0.003500 | 0.003500 |
| 85  | 0.110757 | 0.077446 | 85           | 0.003500 | 0.003000 |
| 86  | 0.122797 | 0.086376 | 86           | 0.003500 | 0.002500 |
| 87  | 0.136043 | 0.096337 | 87           | 0.003000 | 0.002000 |
| 88  | 0.150590 | 0.107303 | 88           | 0.002500 | 0.002000 |
| 89  | 0.166420 | 0.119154 | 89           | 0.002500 | 0.001500 |
| 90  | 0.183408 | 0.131682 | 90           | 0.002000 | 0.001500 |
| 91  | 0.199769 | 0.144604 | 91           | 0.002000 | 0.001500 |
| 92  | 0.216605 | 0.157618 | 92           | 0.001500 | 0.001500 |
| 93  | 0.233662 | 0.170433 | 93           | 0.001500 | 0.001000 |
| 94  | 0.250693 | 0.182799 | 94           | 0.001500 | 0.001000 |
| 95  | 0.267491 | 0.194509 | 95           | 0.001000 | 0.001000 |
| 96  | 0.283905 | 0.205379 | 96           | 0.001000 | 0.001000 |
| 97  | 0.299852 | 0.215240 | 97           | 0.001000 | 0.000500 |
| 98  | 0.315296 | 0.223947 | 98           | 0.000500 | 0.000500 |
| 99  | 0.330207 | 0.231387 | 99           | 0.000500 | 0.000500 |
| 100   | 0.344556 | 0.237467 | 100          | 0.000500 | 0.000500 |
| 101   | 0.358628 | 0.244834 | 101          | 0.000000 | 0.000000 |
| 102   | 0.371685 | 0.254498 | 102          | 0.000000 | 0.000000 |
| 103   | 0.383040 | 0.266044 | 103          | 0.000000 | 0.000000 |
| 104   | 0.392003 | 0.279055 | 104          | 0.000000 | 0.000000 |
| 105   | 0.397886 | 0.293116 | 105          | 0.000000 | 0.000000 |
| 106   | 0.400000 | 0.307811 | 106          | 0.000000 | 0.000000 |
| 107   | 0.400000 | 0.322725 | 107          | 0.000000 | 0.000000 |
| 108   | 0.400000 | 0.337441 | 108          | 0.000000 | 0.000000 |
| 109   | 0.400000 | 0.351544 | 109          | 0.000000 | 0.000000 |
| 110   | 0.400000 | 0.364617 | 110          | 0.000000 | 0.000000 |

Scale AA represents annual improvements in mortality rates.

| Age<br>Offsets | Projected Mortality |          |               |          |                 |          |               |          | Projected Disabled Mortality |           |                 |          |                 |           |                 |     | WSPRS |  |
|----------------|---------------------|----------|---------------|----------|-----------------|----------|---------------|----------|------------------------------|-----------|-----------------|----------|-----------------|-----------|-----------------|-----|-------|--|
|                | LEOFF               |          |               |          | WSPRS           |          |               |          | LEOFF                        |           |                 |          | WSPRS           |           |                 |     |       |  |
|                | Plan 1 - 2019       |          | Plan 2 - 2034 |          | Plan 1/2 - 2028 |          | Plan 1 - 2019 |          | Plan 1 - 2034                |           | Plan 1/2 - 2028 |          | Plan 1/2 - 2028 |           | Plan 1/2 - 2028 |     |       |  |
| Male           | Female              | Male     | Female        | Male     | Female          | Male     | Female        | Male     | Female                       | Male      | Female          | Male     | Female          | Male      | Female          | Age |       |  |
| 20             | 0.000288            | 0.000165 | 0.000249      | 0.000146 | 0.000264        | 0.000153 | 0.000306      | 0.000166 | 0.016316                     | 0.0005670 | 0.017277        | 0.005950 | 0.017523        | 0.005573  | 0.017523        | 20  |       |  |
| 21             | 0.000290            | 0.000165 | 0.000253      | 0.000145 | 0.000267        | 0.000153 | 0.000316      | 0.000168 | 0.016598                     | 0.0005573 | 0.017523        | 0.005866 | 0.017523        | 0.005573  | 0.017523        | 21  |       |  |
| 22             | 0.000303            | 0.000168 | 0.000267      | 0.000148 | 0.000281        | 0.000155 | 0.000322      | 0.000171 | 0.016885                     | 0.0005573 | 0.017772        | 0.005866 | 0.017772        | 0.005573  | 0.017772        | 22  |       |  |
| 23             | 0.000316            | 0.000173 | 0.000282      | 0.000153 | 0.000296        | 0.000161 | 0.000328      | 0.000178 | 0.017474                     | 0.0005670 | 0.018281        | 0.005950 | 0.018281        | 0.0005670 | 0.018281        | 23  |       |  |
| 24             | 0.000329            | 0.000180 | 0.000298      | 0.000160 | 0.000310        | 0.000168 | 0.000337      | 0.000186 | 0.018082                     | 0.0005768 | 0.018804        | 0.006034 | 0.018804        | 0.0005768 | 0.018804        | 24  |       |  |
| 25             | 0.000340            | 0.000188 | 0.000316      | 0.000169 | 0.000325        | 0.000176 | 0.000350      | 0.000196 | 0.019034                     | 0.0005867 | 0.019615        | 0.006120 | 0.019615        | 0.0005867 | 0.019615        | 25  |       |  |
| 26             | 0.000353            | 0.000199 | 0.000337      | 0.000182 | 0.000344        | 0.000188 | 0.000372      | 0.000210 | 0.020379                     | 0.0006071 | 0.020750        | 0.006295 | 0.020750        | 0.0006071 | 0.020750        | 26  |       |  |
| 27             | 0.000360            | 0.000210 | 0.000347      | 0.000192 | 0.000352        | 0.000199 | 0.000393      | 0.000221 | 0.020730                     | 0.0006071 | 0.021043        | 0.006295 | 0.021043        | 0.0006071 | 0.021043        | 27  |       |  |
| 28             | 0.000364            | 0.000221 | 0.000351      | 0.000202 | 0.000356        | 0.000210 | 0.000423      | 0.000236 | 0.020730                     | 0.0006071 | 0.021043        | 0.006295 | 0.021043        | 0.0006071 | 0.021043        | 28  |       |  |
| 29             | 0.000375            | 0.000236 | 0.000361      | 0.000216 | 0.000366        | 0.000224 | 0.000476      | 0.000275 | 0.020730                     | 0.0006071 | 0.021043        | 0.006295 | 0.021043        | 0.0006071 | 0.021043        | 29  |       |  |
| 30             | 0.000393            | 0.000280 | 0.000378      | 0.000260 | 0.000384        | 0.000268 | 0.000536      | 0.000319 | 0.020730                     | 0.0006283 | 0.021043        | 0.006474 | 0.021043        | 0.0006283 | 0.021043        | 30  |       |  |
| 31             | 0.000423            | 0.000324 | 0.000408      | 0.000305 | 0.000414        | 0.000313 | 0.000602      | 0.000365 | 0.020730                     | 0.0006501 | 0.021043        | 0.006659 | 0.021043        | 0.0006501 | 0.021043        | 31  |       |  |
| 32             | 0.000476            | 0.000365 | 0.000458      | 0.000343 | 0.000465        | 0.000352 | 0.000669      | 0.000402 | 0.020730                     | 0.0006501 | 0.021043        | 0.006659 | 0.021043        | 0.0006501 | 0.021043        | 32  |       |  |
| 33             | 0.000536            | 0.000399 | 0.000516      | 0.000373 | 0.000524        | 0.000383 | 0.000737      | 0.000435 | 0.020730                     | 0.0006391 | 0.021043        | 0.006566 | 0.021043        | 0.0006391 | 0.021043        | 33  |       |  |
| 34             | 0.000602            | 0.000431 | 0.000580      | 0.000400 | 0.000588        | 0.000412 | 0.000802      | 0.000466 | 0.020730                     | 0.0006283 | 0.021043        | 0.006474 | 0.021043        | 0.0006283 | 0.021043        | 34  |       |  |
| 35             | 0.000669            | 0.000462 | 0.000645      | 0.000425 | 0.000654        | 0.000440 | 0.000862      | 0.000497 | 0.020730                     | 0.0006176 | 0.021043        | 0.006384 | 0.021043        | 0.0006176 | 0.021043        | 35  |       |  |
| 36             | 0.000737            | 0.000493 | 0.000710      | 0.000451 | 0.000721        | 0.000467 | 0.000918      | 0.000532 | 0.020730                     | 0.0006071 | 0.021043        | 0.006295 | 0.021043        | 0.0006071 | 0.021043        | 36  |       |  |
| 37             | 0.000802            | 0.000528 | 0.000772      | 0.000478 | 0.000784        | 0.000497 | 0.000971      | 0.000571 | 0.020730                     | 0.0005968 | 0.021043        | 0.006207 | 0.021043        | 0.0005968 | 0.021043        | 37  |       |  |
| 38             | 0.000855            | 0.000566 | 0.000817      | 0.000510 | 0.000832        | 0.000531 | 0.001016      | 0.000617 | 0.020379                     | 0.0005867 | 0.020750        | 0.006120 | 0.020750        | 0.0005867 | 0.020750        | 38  |       |  |
| 39             | 0.000903            | 0.000612 | 0.000857      | 0.000547 | 0.000875        | 0.000572 | 0.001065      | 0.000671 | 0.020035                     | 0.0005768 | 0.020460        | 0.006034 | 0.020460        | 0.0005768 | 0.020460        | 39  |       |  |
| 40             | 0.000948            | 0.000671 | 0.000892      | 0.000599 | 0.000914        | 0.000627 | 0.001123      | 0.000738 | 0.019696                     | 0.0005768 | 0.020175        | 0.006034 | 0.020175        | 0.0005768 | 0.020175        | 40  |       |  |
| 41             | 0.000992            | 0.000738 | 0.000927      | 0.000660 | 0.000952        | 0.000690 | 0.001189      | 0.000812 | 0.019362                     | 0.0005768 | 0.019893        | 0.006034 | 0.019893        | 0.0005768 | 0.019893        | 41  |       |  |
| 42             | 0.001040            | 0.000812 | 0.000965      | 0.000725 | 0.000994        | 0.000759 | 0.001266      | 0.000892 | 0.019034                     | 0.0005768 | 0.019615        | 0.006034 | 0.019615        | 0.0005768 | 0.019615        | 42  |       |  |
| 43             | 0.001096            | 0.000892 | 0.001009      | 0.000797 | 0.001043        | 0.000833 | 0.001354      | 0.000973 | 0.018712                     | 0.0005768 | 0.019341        | 0.006034 | 0.019341        | 0.0005768 | 0.019341        | 43  |       |  |
| 44             | 0.001160            | 0.000973 | 0.001060      | 0.000869 | 0.001099        | 0.000909 | 0.001437      | 0.001057 | 0.018394                     | 0.0005768 | 0.019071        | 0.006034 | 0.019071        | 0.0005768 | 0.019071        | 44  |       |  |

| Age<br>Offsets | Projected Mortality<br>(Continued) |               |                 |          |          |          |          |          | Projected Disabled Mortality<br>(Continued) |          |          |          |        |          |        |     |
|----------------|------------------------------------|---------------|-----------------|----------|----------|----------|----------|----------|---|----------|----------|----------|--------|----------|--------|-----|
|                | LEOFF                              |               |                 |          | WSPRS    |          |          |          | LEOFF                                       |          |          |          | WSPRS  |          |        |     |
|                | Plan 1 - 2019                      | Plan 2 - 2034 | Plan 1/2 - 2028 | Male     | Female   | Male     | Female   | Male     | Female                                      | Male     | Female   | Male     | Female | Male     | Female | Age |
| 45             | 0.001236                           | 0.001048      | 0.001121        | 0.000929 | 0.001166 | 0.000975 | 0.001527 | 0.001135 | 0.018082                                    | 0.005670 | 0.018804 | 0.005950 | 45     | 0.005950 | 45     |     |
| 46             | 0.001322                           | 0.001126      | 0.001189        | 0.000990 | 0.001241 | 0.001043 | 0.001623 | 0.001217 | 0.018781                                    | 0.006122 | 0.019589 | 0.006444 | 46     | 0.006444 | 46     |     |
| 47             | 0.001403                           | 0.001208      | 0.001253        | 0.001055 | 0.001311 | 0.001113 | 0.001724 | 0.001305 | 0.019450                                    | 0.006588 | 0.020349 | 0.006955 | 47     | 0.006955 | 47     |     |
| 48             | 0.001491                           | 0.001305      | 0.001322        | 0.001140 | 0.001387 | 0.001203 | 0.001830 | 0.001414 | 0.020094                                    | 0.007188 | 0.021086 | 0.007589 | 48     | 0.007589 | 48     |     |
| 49             | 0.001584                           | 0.001414      | 0.001394        | 0.001234 | 0.001467 | 0.001303 | 0.002076 | 0.001564 | 0.020712                                    | 0.007820 | 0.021801 | 0.008256 | 49     | 0.008256 | 49     |     |
| 50             | 0.001683                           | 0.001577      | 0.001469        | 0.001388 | 0.001551 | 0.001460 | 0.002239 | 0.001724 | 0.021307                                    | 0.008629 | 0.022495 | 0.009083 | 50     | 0.009083 | 50     |     |
| 51             | 0.001786                           | 0.001738      | 0.001548        | 0.001540 | 0.001639 | 0.001616 | 0.002429 | 0.001906 | 0.021879                                    | 0.009495 | 0.023169 | 0.009964 | 51     | 0.009964 | 51     |     |
| 52             | 0.002026                           | 0.001937      | 0.001743        | 0.001743 | 0.001851 | 0.001818 | 0.002640 | 0.002134 | 0.022427                                    | 0.010597 | 0.023821 | 0.011053 | 52     | 0.011053 | 52     |     |
| 53             | 0.002203                           | 0.002169      | 0.001895        | 0.001981 | 0.002013 | 0.002054 | 0.002999 | 0.002438 | 0.023348                                    | 0.011788 | 0.024799 | 0.012222 | 53     | 0.012222 | 53     |     |
| 54             | 0.002409                           | 0.002478      | 0.002072        | 0.002298 | 0.002201 | 0.002368 | 0.003480 | 0.002826 | 0.024267                                    | 0.013069 | 0.025775 | 0.013468 | 54     | 0.013468 | 54     |     |
| 55             | 0.002662                           | 0.002872      | 0.002307        | 0.002704 | 0.002443 | 0.002770 | 0.003926 | 0.003238 | 0.025619                                    | 0.014436 | 0.027130 | 0.014788 | 55     | 0.014788 | 55     |     |
| 56             | 0.003047                           | 0.003290      | 0.002661        | 0.003145 | 0.002809 | 0.003202 | 0.004454 | 0.003711 | 0.027012                                    | 0.015889 | 0.028517 | 0.016178 | 56     | 0.016178 | 56     |     |
| 57             | 0.003566                           | 0.003741      | 0.003137        | 0.003603 | 0.003302 | 0.003657 | 0.005063 | 0.004235 | 0.028447                                    | 0.017132 | 0.029942 | 0.017391 | 57     | 0.017391 | 57     |     |
| 58             | 0.004023                           | 0.004235      | 0.003566        | 0.004079 | 0.003742 | 0.004140 | 0.005792 | 0.004820 | 0.029934                                    | 0.018102 | 0.031412 | 0.018376 | 58     | 0.018376 | 58     |     |
| 59             | 0.004527                           | 0.004820      | 0.004013        | 0.004643 | 0.004211 | 0.004713 | 0.006600 | 0.005544 | 0.030949                                    | 0.019074 | 0.032477 | 0.019362 | 59     | 0.019362 | 59     |     |
| 60             | 0.005104                           | 0.005544      | 0.004524        | 0.005340 | 0.004748 | 0.005420 | 0.007529 | 0.006348 | 0.031995                                    | 0.020057 | 0.033575 | 0.020361 | 60     | 0.020361 | 60     |     |
| 61             | 0.005839                           | 0.006348      | 0.005215        | 0.006114 | 0.005456 | 0.006206 | 0.008691 | 0.007293 | 0.033656                                    | 0.021065 | 0.035211 | 0.021384 | 61     | 0.021384 | 61     |     |
| 62             | 0.006653                           | 0.007293      | 0.005943        | 0.007024 | 0.006217 | 0.007130 | 0.009791 | 0.008219 | 0.034823                                    | 0.022115 | 0.036432 | 0.022450 | 62     | 0.022450 | 62     |     |
| 63             | 0.007651                           | 0.008219      | 0.006886        | 0.007916 | 0.007183 | 0.008036 | 0.011146 | 0.009255 | 0.036687                                    | 0.023229 | 0.038266 | 0.023581 | 63     | 0.023581 | 63     |     |
| 64             | 0.008761                           | 0.009255      | 0.007885        | 0.008914 | 0.008224 | 0.009049 | 0.012628 | 0.010445 | 0.038044                                    | 0.024430 | 0.039682 | 0.024800 | 64     | 0.024800 | 64     |     |
| 65             | 0.009871                           | 0.010445      | 0.008883        | 0.010060 | 0.009266 | 0.010213 | 0.014088 | 0.011598 | 0.039514                                    | 0.025739 | 0.041215 | 0.026129 | 65     | 0.026129 | 65     |     |
| 66             | 0.011236                           | 0.011598      | 0.010189        | 0.011171 | 0.010595 | 0.011340 | 0.015765 | 0.012821 | 0.041830                                    | 0.027180 | 0.043499 | 0.027591 | 66     | 0.027591 | 66     |     |
| 67             | 0.012730                           | 0.012821      | 0.011544        | 0.012348 | 0.012004 | 0.012535 | 0.017468 | 0.014170 | 0.043622                                    | 0.028769 | 0.045363 | 0.029205 | 67     | 0.029205 | 67     |     |
| 68             | 0.014088                           | 0.014170      | 0.012679        | 0.013648 | 0.013225 | 0.013854 | 0.019402 | 0.015964 | 0.044818                                    | 0.030523 | 0.046748 | 0.030984 | 68     | 0.030984 | 68     |     |
| 69             | 0.015638                           | 0.015964      | 0.014074        | 0.015376 | 0.014680 | 0.015609 | 0.021468 | 0.017689 | 0.046948                                    | 0.032452 | 0.048969 | 0.032943 | 69     | 0.032943 | 69     |     |

| Projected Mortality<br>(Continued) |               |          |          |          |               |          |          |          |          | Projected Disabled Mortality<br>(Continued) |          |          |       |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
|------------------------------------|---------------|----------|----------|----------|---------------|----------|----------|----------|----------|---|----------|----------|-------|--------|------|--------|---------------|--------|------|--------|---------------|--------|--|--|-------|--|--|--|
| Age                                | Plan 1 - 2019 |          |          |          | Plan 2 - 2034 |          |          |          | WSPRS    |   |          |          | LEOFF |        |      |        | Plan 1 - 2019 |        |      |        | Plan 2 - 2034 |        |  |  | WSPRS |  |  |  |
|                                    | Male          | Female   | Male     | Female   | Male          | Female   | Male     | Female   | Male     | Female                                      | Male     | Female   | Male  | Female | Male | Female | Male          | Female | Male | Female | Male          | Female |  |  |       |  |  |  |
| Offsets                            | -1            | 1        | -1       | 1        | -1            | 1        | 2        | 2        | 0        | 0   | 0        | 0        | 0     | 0      | 0    | 0      | 0             | 0      | 0    | 0      | 0             | 0      |  |  |       |  |  |  |
| 70                                 | 0.017189      | 0.017689 | 0.015353 | 0.017038 | 0.016063      | 0.017295 | 0.023645 | 0.019676 | 0.048450 | 0.034565                                    | 0.050689 | 0.035088 | 70    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 71                                 | 0.019246      | 0.019518 | 0.017191 | 0.018658 | 0.017986      | 0.018998 | 0.026337 | 0.021663 | 0.050972 | 0.036242                                    | 0.053327 | 0.036901 | 71    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 72                                 | 0.021295      | 0.021663 | 0.019021 | 0.020708 | 0.019900      | 0.021085 | 0.029382 | 0.024009 | 0.053731 | 0.038690                                    | 0.056214 | 0.039394 | 72    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 73                                 | 0.023645      | 0.023817 | 0.021120 | 0.022597 | 0.022096      | 0.023078 | 0.032841 | 0.026255 | 0.056741 | 0.040626                                    | 0.059362 | 0.041489 | 73    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 74                                 | 0.026337      | 0.026255 | 0.023525 | 0.024910 | 0.024612      | 0.025440 | 0.036604 | 0.028927 | 0.060008 | 0.043400                                    | 0.062780 | 0.044323 | 74    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 75                                 | 0.029620      | 0.028695 | 0.026657 | 0.027021 | 0.027805      | 0.027679 | 0.041107 | 0.031652 | 0.064631 | 0.045576                                    | 0.067414 | 0.046685 | 75    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 76                                 | 0.033107      | 0.031652 | 0.029796 | 0.029805 | 0.031079      | 0.030530 | 0.045748 | 0.034891 | 0.068478 | 0.048671                                    | 0.071426 | 0.049856 | 76    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 77                                 | 0.037199      | 0.035172 | 0.033372 | 0.033370 | 0.035078      | 0.034080 | 0.051331 | 0.038831 | 0.073824 | 0.052853                                    | 0.076770 | 0.053977 | 77    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 78                                 | 0.041775      | 0.038831 | 0.038169 | 0.036842 | 0.039572      | 0.037625 | 0.057587 | 0.042922 | 0.079573 | 0.056404                                    | 0.082499 | 0.057603 | 78    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 79                                 | 0.046867      | 0.042922 | 0.043146 | 0.040723 | 0.044597      | 0.041589 | 0.065070 | 0.047507 | 0.085714 | 0.060175                                    | 0.088597 | 0.061454 | 79    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 80                                 | 0.052585      | 0.047507 | 0.048777 | 0.045073 | 0.050266      | 0.046032 | 0.073395 | 0.052666 | 0.092234 | 0.064186                                    | 0.095050 | 0.065550 | 80    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 81                                 | 0.058993      | 0.052666 | 0.055134 | 0.049968 | 0.056646      | 0.051030 | 0.082474 | 0.058478 | 0.099118 | 0.068467                                    | 0.101836 | 0.069922 | 81    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 82                                 | 0.066658      | 0.058478 | 0.062769 | 0.055482 | 0.064296      | 0.056661 | 0.092602 | 0.065037 | 0.106350 | 0.073050                                    | 0.108939 | 0.074603 | 82    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 83                                 | 0.074584      | 0.065037 | 0.070232 | 0.061705 | 0.071942      | 0.063017 | 0.102790 | 0.072564 | 0.111993 | 0.077967                                    | 0.114719 | 0.079625 | 83    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 84                                 | 0.083810      | 0.072564 | 0.079516 | 0.068846 | 0.081206      | 0.070310 | 0.114883 | 0.081053 | 0.119761 | 0.083254                                    | 0.122307 | 0.085024 | 84    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 85                                 | 0.093349      | 0.081706 | 0.088566 | 0.078106 | 0.090449      | 0.079526 | 0.127467 | 0.091266 | 0.125690 | 0.090472                                    | 0.128362 | 0.092118 | 85    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 86                                 | 0.103619      | 0.092001 | 0.098310 | 0.088610 | 0.100400      | 0.089951 | 0.141310 | 0.102473 | 0.131700 | 0.098361                                    | 0.134500 | 0.099850 | 86    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 87                                 | 0.115809      | 0.103298 | 0.110706 | 0.100242 | 0.112719      | 0.101453 | 0.157422 | 0.114879 | 0.140160 | 0.106977                                    | 0.142710 | 0.108270 | 87    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 88                                 | 0.129529      | 0.114879 | 0.124756 | 0.111481 | 0.126644      | 0.112828 | 0.175153 | 0.126958 | 0.148954 | 0.114405                                    | 0.151208 | 0.115788 | 88    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 89                                 | 0.143596      | 0.127979 | 0.138304 | 0.125130 | 0.140397      | 0.126262 | 0.190777 | 0.140538 | 0.155426 | 0.124455                                    | 0.157778 | 0.125581 | 89    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 90                                 | 0.159968      | 0.140538 | 0.155235 | 0.137409 | 0.157111      | 0.138652 | 0.208834 | 0.153186 | 0.171339 | 0.133080                                    | 0.173410 | 0.134285 | 90    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 91                                 | 0.176563      | 0.153186 | 0.171339 | 0.149775 | 0.173410      | 0.151130 | 0.225279 | 0.165890 | 0.186624 | 0.142249                                    | 0.188879 | 0.143536 | 91    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 92                                 | 0.193860      | 0.165890 | 0.189544 | 0.162196 | 0.191259      | 0.163664 | 0.243644 | 0.177926 | 0.205827 | 0.151967                                    | 0.207689 | 0.153341 | 92    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 93                                 | 0.210514      | 0.179357 | 0.205827 | 0.176685 | 0.207689      | 0.177749 | 0.260360 | 0.190846 | 0.222036 | 0.164733                                    | 0.224044 | 0.165725 | 93    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |
| 94                                 | 0.227092      | 0.190846 | 0.222036 | 0.188004 | 0.224044      | 0.189136 | 0.276337 | 0.201512 | 0.238219 | 0.176685                                    | 0.240374 | 0.177749 | 94    |        |      |        |               |        |      |        |               |        |  |  |       |  |  |  |

| Projected Mortality<br><i>(Continued)</i> |          |          |          |          |          |          |          |          |          | Projected Disabled Mortality<br><i>(Continued)</i> |          |          |       |        |      |        |      |        |  |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|----------|-------|--------|------|--------|------|--------|--|
| Age                                       | LEOFF    |          |          |          | WSPRS    |          |          |          | LEOFF    |  |          |          | WSPRS |        |      |        |      |        |  |
|   | Male     | Female   | Male     | Female   | Male  | Female | Male | Female | Male | Female |  |
| 95  | 0.245603 | 0.201512 | 0.241945 | 0.198510 | 0.243402 | 0.199705 | 0.294206 | 0.211504 | 0.258545 | 0.188004   | 0.260101 | 0.189136 | 95    |        |      |        |      |        |  |
| 96  | 0.262454 | 0.211504 | 0.258545 | 0.208354 | 0.260101 | 0.209608 | 0.309824 | 0.220060 | 0.274410 | 0.198510   | 0.276062 | 0.199705 | 96    |        |      |        |      |        |  |
| 97  | 0.278559 | 0.221829 | 0.274410 | 0.220171 | 0.276062 | 0.220833 | 0.324476 | 0.229199 | 0.289823 | 0.211611   | 0.291569 | 0.212247 | 97    |        |      |        |      |        |  |
| 98  | 0.296571 | 0.229199 | 0.294354 | 0.227486 | 0.295239 | 0.228169 | 0.341810 | 0.235574 | 0.309980 | 0.220171   | 0.310912 | 0.220833 | 98    |        |      |        |      |        |  |
| 99  | 0.312314 | 0.235574 | 0.309980 | 0.233814 | 0.310912 | 0.234516 | 0.355770 | 0.242883 | 0.324640 | 0.227486   | 0.325615 | 0.228169 | 99    |        |      |        |      |        |  |
| 100                                       | 0.329712 | 0.244834 | 0.329712 | 0.244834 | 0.329712 | 0.244834 | 0.371685 | 0.254498 | 0.344556 | 0.237467   | 0.344556 | 0.237467 | 100   |        |      |        |      |        |  |
| 101                                       | 0.344556 | 0.254498 | 0.344556 | 0.254498 | 0.344556 | 0.254498 | 0.383040 | 0.266044 | 0.358628 | 0.244834   | 0.358628 | 0.244834 | 101   |        |      |        |      |        |  |
| 102                                       | 0.358628 | 0.266044 | 0.358628 | 0.266044 | 0.358628 | 0.266044 | 0.392003 | 0.279055 | 0.371685 | 0.254498   | 0.371685 | 0.254498 | 102   |        |      |        |      |        |  |
| 103                                       | 0.371685 | 0.279055 | 0.371685 | 0.279055 | 0.371685 | 0.279055 | 0.397886 | 0.293116 | 0.383040 | 0.266044   | 0.383040 | 0.266044 | 103   |        |      |        |      |        |  |
| 104                                       | 0.383040 | 0.293116 | 0.383040 | 0.293116 | 0.383040 | 0.293116 | 0.400000 | 0.307811 | 0.392003 | 0.279055   | 0.392003 | 0.279055 | 104   |        |      |        |      |        |  |
| 105                                       | 0.392003 | 0.307811 | 0.392003 | 0.307811 | 0.392003 | 0.307811 | 0.400000 | 0.322725 | 0.397886 | 0.293116   | 0.397886 | 0.293116 | 105   |        |      |        |      |        |  |
| 106                                       | 0.397886 | 0.322725 | 0.397886 | 0.322725 | 0.397886 | 0.322725 | 0.400000 | 0.337441 | 0.400000 | 0.307811   | 0.400000 | 0.307811 | 106   |        |      |        |      |        |  |
| 107                                       | 0.400000 | 0.337441 | 0.400000 | 0.337441 | 0.400000 | 0.337441 | 0.400000 | 0.351544 | 0.400000 | 0.322725   | 0.400000 | 0.322725 | 107   |        |      |        |      |        |  |
| 108                                       | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.337441   | 0.400000 | 0.337441 | 108   |        |      |        |      |        |  |
| 109                                       | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.351544 | 0.400000 | 0.351544   | 0.400000 | 0.351544 | 109   |        |      |        |      |        |  |
| 110                                       | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000   | 1.000000 | 1.000000 | 110   |        |      |        |      |        |  |

*Improvements in mortality are projected to the year specified for each plan based on 50% of scale AA.*

| Age | Service Retirement |        |         |        |        |        | Disability |        |         |        |        |        | Ratio of Survivors Selecting Annuities* |        |         |        |         |        |         |  |
|-----|--------------------|--------|---------|--------|--------|--------|------------|--------|---------|--------|--------|--------|---|--------|---------|--------|---------|--------|---------|--|
|     | LEOFF 1            |        | LEOFF 2 |        | WSPRS  |        | LEOFF 1    |        | LEOFF 2 |        | WSPRS  |        | LEOFF 1                                 |        | LEOFF 2 |        | WSPRS 1 |        | WSPRS 2 |  |
|     | Male &             | Female | Male &  | Female | Male & | Female | Male &     | Female | Male &  | Female | Male & | Female | Male &                                  | Female | Male &  | Female | Male &  | Female | Age     |  |
| 20  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0003 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 20     |         |  |
| 21  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0003 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 21     |         |  |
| 22  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0003 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 22     |         |  |
| 23  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0003 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 23     |         |  |
| 24  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0003 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 24     |         |  |
| 25  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0010 | 0.0004 | 0.00       | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 25     |         |  |
| 26  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0024 | 0.0011 | 0.0004     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 26     |         |  |
| 27  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0038 | 0.0011 | 0.0004     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 27     |         |  |
| 28  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0052 | 0.0012 | 0.0004     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 28     |         |  |
| 29  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0066 | 0.0012 | 0.0005     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 29     |         |  |
| 30  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0080 | 0.0012 | 0.0005     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 30     |         |  |
| 31  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0094 | 0.0013 | 0.0005     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 31     |         |  |
| 32  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0107 | 0.0014 | 0.0006     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 32     |         |  |
| 33  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0121 | 0.0015 | 0.0006     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 33     |         |  |
| 34  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0135 | 0.0016 | 0.0006     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 34     |         |  |
| 35  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0149 | 0.0017 | 0.0007     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 35     |         |  |
| 36  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0163 | 0.0018 | 0.0007     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 36     |         |  |
| 37  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0190 | 0.0019 | 0.0008     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 37     |         |  |
| 38  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0205 | 0.0020 | 0.0008     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 38     |         |  |
| 39  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0220 | 0.0021 | 0.0009     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 39     |         |  |
| 40  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0235 | 0.0023 | 0.0009     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 40     |         |  |
| 41  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0249 | 0.0024 | 0.0010     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 41     |         |  |
| 42  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0264 | 0.0025 | 0.0011     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 42     |         |  |
| 43  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0279 | 0.0027 | 0.0011     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 43     |         |  |
| 44  | 0.00               | 0.00   | 0.00    | 0.00   | 0.0360 | 0.0028 | 0.0012     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 44     |         |  |
| 45  | 0.00               | 0.00   | 0.00    | 0.45   | 0.0400 | 0.0030 | 0.0013     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 45     |         |  |
| 46  | 0.00               | 0.00   | 0.31    | 0.31   | 0.0468 | 0.0038 | 0.0014     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 46     |         |  |
| 47  | 0.00               | 0.00   | 0.31    | 0.31   | 0.0532 | 0.0049 | 0.0015     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 47     |         |  |
| 48  | 0.00               | 0.00   | 0.31    | 0.31   | 0.0592 | 0.0062 | 0.0016     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 48     |         |  |
| 49  | 0.00               | 0.00   | 0.28    | 0.28   | 0.0648 | 0.0079 | 0.0017     | 0.00   | 0.00    | 0.00   | 0.00   | 0.00   | 0.00                                    | 0.00   | 0.00    | 0.00   | 0.00    | 49     |         |  |

Rates have been rounded for display purposes.

\*Refers to survivor who selects annuity payments (rather than a lump sum payment) upon active or terminated vested member's death. The LEOFF 2 ratio is 0.60 for duty-related deaths.

| Service Retirement<br>(Continued) |        |        |        |         |        |        |        | Disability<br>(Continued) |        |        |        |         |        |        |        | Ratio of Survivors Selecting Annuities* |        |        |        |         |        |        |        |       |  |
|-----------------------------------|--------|--------|--------|---------|--------|--------|--------|---------------------------|--------|--------|--------|---------|--------|--------|--------|---|--------|--------|--------|---------|--------|--------|--------|-------|--|
| LEOFF 1                           |        |        |        | LEOFF 2 |        |        |        | WSPRS                     |        |        |        | LEOFF 1 |        |        |        | LEOFF 2                                 |        |        |        | WSPRS 1 |        |        |        | WSPRS |  |
| Age                               | Female | Male & | Female | Female  | Male & | Male & | Female | Female                    | Male & | Male & | Female | Female  | Female | Male & | Male & | Female                                  | Female | Male & | Male & | Female  | Female | Male & | Male & | Age   |  |
| 50                                | 0.07   | 0.05   | 0.28   | 0.0700  | 0.0101 | 0.0018 | 0.56   | 0.30                      | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 0.56   | 0.30                                    | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 50     |       |  |
| 51                                | 0.07   | 0.05   | 0.23   | 0.0748  | 0.0120 | 0.0019 | 0.56   | 0.30                      | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 0.56   | 0.30                                    | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 51     |       |  |
| 52                                | 0.07   | 0.05   | 0.23   | 0.0792  | 0.0143 | 0.0020 | 0.56   | 0.30                      | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 0.56   | 0.30                                    | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 52     |       |  |
| 53                                | 0.07   | 0.10   | 0.23   | 0.0832  | 0.0170 | 0.0022 | 0.56   | 0.30                      | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 0.56   | 0.30                                    | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 53     |       |  |
| 54                                | 0.11   | 0.12   | 0.23   | 0.0868  | 0.0202 | 0.0023 | 0.56   | 0.30                      | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 0.56   | 0.30                                    | 0.56   | 0.30   | 0.56   | 0.30    | 0.56   | 0.30   | 54     |       |  |
| 55                                | 0.12   | 0.15   | 0.23   | 0.0900  | 0.0240 | 0.0025 | 0.56   | 0.39                      | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 0.56   | 0.39                                    | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 55     |       |  |
| 56                                | 0.12   | 0.15   | 0.23   | 0.0928  | 0.0240 | 0.0026 | 0.56   | 0.39                      | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 0.56   | 0.39                                    | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 56     |       |  |
| 57                                | 0.15   | 0.15   | 0.23   | 0.0952  | 0.0240 | 0.0028 | 0.56   | 0.39                      | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 0.56   | 0.39                                    | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 57     |       |  |
| 58                                | 0.16   | 0.20   | 0.20   | 0.0972  | 0.0240 | 0.0030 | 0.56   | 0.39                      | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 0.56   | 0.39                                    | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 58     |       |  |
| 59                                | 0.16   | 0.20   | 0.23   | 0.0988  | 0.0240 | 0.0032 | 0.56   | 0.39                      | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 0.56   | 0.39                                    | 0.56   | 0.39   | 0.56   | 0.39    | 0.56   | 0.39   | 59     |       |  |
| 60                                | 0.23   | 0.20   | 0.23   | 0.1000  | 0.0240 | 0.0034 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 60     |       |  |
| 61                                | 0.25   | 0.25   | 0.25   | 0.1008  | 0.0240 | 0.0028 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 61     |       |  |
| 62                                | 0.25   | 0.25   | 0.25   | 0.1012  | 0.0240 | 0.0021 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 62     |       |  |
| 63                                | 0.25   | 0.25   | 0.27   | 0.1012  | 0.0240 | 0.0014 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 63     |       |  |
| 64                                | 0.25   | 0.25   | 0.33   | 0.1008  | 0.0240 | 0.0007 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 64     |       |  |
| 65                                | 0.25   | 0.25   | 1.00   | 0.1000  | 0.0240 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 65     |       |  |
| 66                                | 0.25   | 0.25   | 1.00   | 0.0756  | 0.0240 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 66     |       |  |
| 67                                | 0.25   | 0.25   | 1.00   | 0.0544  | 0.0240 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 67     |       |  |
| 68                                | 0.25   | 0.25   | 1.00   | 0.0364  | 0.0240 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 68     |       |  |
| 69                                | 0.25   | 0.25   | 1.00   | 0.0216  | 0.0240 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 69     |       |  |
| 70                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 70     |       |  |
| 71                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 71     |       |  |
| 72                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 72     |       |  |
| 73                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 73     |       |  |
| 74                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 74     |       |  |
| 75                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 75     |       |  |
| 76                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 76     |       |  |
| 77                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 77     |       |  |
| 78                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 78     |       |  |
| 79                                | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 79     |       |  |
| 80+                               | 1.00   | 1.00   | 1.00   | 0.0000  | 0.0000 | 0.0000 | 0.56   | 0.53                      | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 0.56   | 0.53                                    | 0.56   | 0.53   | 0.56   | 0.53    | 0.56   | 0.53   | 80+    |       |  |

\*Rates have been rounded for display purposes.  
\*Refers to survivor who selects annuity payments (rather than a lump sum payment) upon active or terminated vested member's death. The LEOFF 2 ratio is 0.60 for duty-related deaths.

| Service Years | Termination   |               |               |               | Percent Vested* |               |               |               | Step Salary Increases by System |              |            |              |
|---------------|---------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---------------------------------|--------------|------------|--------------|
|               | LEOFF 1       |               | LEOFF 2       |               | WSPRS           |               | LEOFF 1       |               | LEOFF 2                         |              | WSPRS      |              |
|               | Male & Female   | Male & Female | Male & Female | Male & Female | % Increase                      | Salary Ratio | % Increase | Salary Ratio |
| 0             | 0.1072        | 0.1062        | 0.0334        | 0.00          | 0.00            | 0.00          | 0.00          | 0.00          | 11.00%                          | 1.840        | 7.10%      | 1.626        |
| 1             | 0.0482        | 0.0472        | 0.0287        | 0.00          | 0.00            | 0.00          | 0.00          | 0.00          | 11.00%                          | 1.657        | 7.10%      | 1.519        |
| 2             | 0.0246        | 0.0236        | 0.0256        | 0.00          | 0.00            | 0.00          | 0.00          | 0.00          | 7.70%                           | 1.493        | 5.90%      | 1.418        |
| 3             | 0.0217        | 0.0208        | 0.0239        | 0.00          | 0.00            | 0.00          | 0.00          | 0.00          | 6.10%                           | 1.386        | 5.20%      | 1.339        |
| 4             | 0.0206        | 0.0196        | 0.0226        | 0.00          | 0.00            | 0.00          | 0.00          | 0.00          | 4.00%                           | 1.307        | 5.20%      | 1.273        |
| 5             | 0.0198        | 0.0188        | 0.0159        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 2.80%                           | 1.256        | 5.20%      | 1.210        |
| 6             | 0.0194        | 0.0184        | 0.0151        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 2.00%                           | 1.222        | 4.50%      | 1.150        |
| 7             | 0.0193        | 0.0184        | 0.0144        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 1.60%                           | 1.198        | 0.80%      | 1.100        |
| 8             | 0.0180        | 0.0170        | 0.0138        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 1.50%                           | 1.179        | 0.80%      | 1.092        |
| 9             | 0.0175        | 0.0166        | 0.0133        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 1.40%                           | 1.162        | 0.80%      | 1.083        |
| 10            | 0.0172        | 0.0162        | 0.0100        | 1.00          | 0.24            | 0.28          | 0.28          | 0.28          | 1.70%                           | 1.146        | 0.80%      | 1.074        |
| 11            | 0.0153        | 0.0143        | 0.0096        | 1.00          | 0.24            | 0.33          | 0.33          | 0.33          | 1.30%                           | 1.127        | 0.80%      | 1.066        |
| 12            | 0.0151        | 0.0141        | 0.0092        | 1.00          | 0.24            | 0.38          | 0.38          | 0.38          | 1.30%                           | 1.112        | 0.40%      | 1.057        |
| 13            | 0.0145        | 0.0135        | 0.0089        | 1.00          | 0.27            | 0.38          | 0.38          | 0.38          | 1.30%                           | 1.098        | 0.40%      | 1.053        |
| 14            | 0.0116        | 0.0106        | 0.0086        | 1.00          | 0.27            | 0.40          | 0.40          | 0.40          | 1.30%                           | 1.084        | 0.40%      | 1.049        |
| 15            | 0.0108        | 0.0098        | 0.0070        | 1.00          | 0.27            | 0.40          | 0.40          | 0.40          | 1.30%                           | 1.070        | 0.40%      | 1.045        |
| 16            | 0.0106        | 0.0096        | 0.0067        | 1.00          | 0.27            | 0.40          | 0.40          | 0.40          | 1.10%                           | 1.056        | 0.40%      | 1.041        |
| 17            | 0.0085        | 0.0075        | 0.0065        | 1.00          | 0.33            | 0.40          | 0.40          | 0.40          | 1.10%                           | 1.045        | 0.40%      | 1.037        |
| 18            | 0.0087        | 0.0077        | 0.0062        | 1.00          | 0.44            | 0.50          | 0.50          | 0.50          | 1.10%                           | 1.033        | 0.40%      | 1.032        |
| 19            | 0.0086        | 0.0077        | 0.0060        | 1.00          | 0.44            | 0.58          | 0.58          | 0.58          | 1.10%                           | 1.022        | 0.40%      | 1.028        |
| 20            | 0.0088        | 0.0078        | 0.0033        | 1.00          | 0.69            | 0.78          | 0.78          | 0.78          | 1.10%                           | 1.011        | 0.40%      | 1.024        |
| 21            | 0.0085        | 0.0076        | 0.0031        | 1.00          | 0.82            | 1.00          | 1.00          | 1.00          | 0.00%                           | 1.000        | 0.40%      | 1.020        |
| 22            | 0.0082        | 0.0072        | 0.0029        | 1.00          | 0.88            | 1.00          | 1.00          | 1.00          | 0.00%                           | 1.000        | 0.40%      | 1.016        |
| 23            | 0.0076        | 0.0066        | 0.0027        | 1.00          | 1.00            | 1.00          | 1.00          | 1.00          | 0.00%                           | 1.000        | 0.40%      | 1.012        |
| 24            | 0.0072        | 0.0063        | 0.0025        | 1.00          | 1.00            | 1.00          | 1.00          | 1.00          | 0.00%                           | 1.000        | 0.40%      | 1.008        |

*Rates have been rounded for display purposes.*

*\*Denotes ratio of members who do not withdraw their savings when they leave employment.*

| Termination<br>(Continued) |               |               |               |               |               |               |               |               |               | Percent Vested* |               |                     |              | Step Salary Increases by System<br>(Continued) |              |    |  |
|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|---------------|---------------------|--------------|--|--------------|----|--|
|                            | LEOFF 1       |               | LEOFF 2       |               | WSPRS         |               | LEOFF 1       |               | LEOFF 2       |                 | WSPRS         |                     | LEOFF        |  | WSPRS        |    |  |
| Service Years              | Male & Female   | Male & Female | Percentage Increase | Salary Ratio | Percentage Increase                            | Salary Ratio |    |  |
| 25                         | 0.0067        | 0.0057        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.40%  | 1.004        | 25 |  |
| 26                         | 0.0077        | 0.0067        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 26 |  |
| 27                         | 0.0070        | 0.0061        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 27 |  |
| 28                         | 0.0062        | 0.0052        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 28 |  |
| 29                         | 0.0018        | 0.0009        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 29 |  |
| 30                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 30 |  |
| 31                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 31 |  |
| 32                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 32 |  |
| 33                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 33 |  |
| 34                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 34 |  |
| 35                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 35 |  |
| 36                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 36 |  |
| 37                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 37 |  |
| 38                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 38 |  |
| 39                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 39 |  |
| 40                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 40 |  |
| 41                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 41 |  |
| 42                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 42 |  |
| 43                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 43 |  |
| 44                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 44 |  |
| 45                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 45 |  |
| 46                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 46 |  |
| 47                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 47 |  |
| 48                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 48 |  |
| 49                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 49 |  |
| 50                         | 0.0016        | 0.0007        | 0.00000       | 0.00000       | 1.00          | 1.00          | 1.00          | 1.00          | 1.00          | 1.00            | 1.00          | 0.00%               | 1.000        | 0.00%  | 1.000        | 50 |  |

*Rates have been rounded for display purposes.**\*Denotes ratio of members who do not withdraw their savings when they leave employment.*

**Portability Load**

|         |      |
|---------|------|
| LEOFF 1 | 0.0% |
| LEOFF 2 | 0.1% |
| WSPRS   | 0.0% |

*Reflects portability provisions  
for each plan.*

**Certain and Life Annuities: Years Certain**

|         |   |
|---------|---|
| LEOFF 1 | 3 |
| LEOFF 2 | 5 |
| WSPRS 1 | 3 |
| WSPRS 2 | 4 |

**Member/Beneficiary Age Difference (In Years)**

|       | Male Member | Female Member |
|-------|-------------|---------------|
| LEOFF | 3           | (2)           |
| WSPRS | 3           | (2)           |

*Age difference is Member age minus Beneficiary age.*

**Duty-Related Death Assumption**

|         | Duty Death Rate* |
|---------|------------------|
| LEOFF 1 | 0.0376%          |
| LEOFF 2 | 0.0376%          |
| WSPRS   | 0.0200%          |

*\*The duty death rate is a constant probability, regardless of age. The nonduty death rate is obtained by subtracting the duty death rate from the mortality rate at any given age.*

**Duty-Related Disability Assumption**

| Age | Duty Disability Rate* |
|-----|-----------------------|
| 20  | 99.93%                |
| 25  | 99.91%                |
| 30  | 99.84%                |
| 35  | 99.81%                |
| 40  | 99.66%                |
| 50  | 99.22%                |
| 55+ | 99.31%                |

*\*Probability of disability being duty-related; geometrically interpolated between given values. Applies to LEOFF 2 only. Table represents a summary of rates.*

**Additional Duty-Related Assumptions for LEOFF 2**

|   |         |
|---|---------|
| Percent of disabilities assumed to be catastrophic                                | 18%     |
| Percent of deaths assumed to be caused by occupational diseases for fire fighters |         |
| Age   | Rate    |
| 20-49   | 14.742% |
| 50-69   | 27.393% |

***Miscellaneous Assumptions/Methods***

- Minimum and maximum allowable ages are set in the data as follows:

|             | Non-Annuitants | Annuitants |
|-------------|----------------|------------|
| Minimum Age | 16             | 20         |
| Maximum Age | 80             | 120        |

- Default entry salaries, increased for past service, are assigned for active members with less than two months' service during the valuation year.
- The Department of Retirement Systems (DRS) does not provide us with the historical salaries of vested terminated members. To estimate salaries for these members we use the following procedure: First, we assign a salary appropriate for the given system/plan and the member's total past service. These salaries are determined as of a given base year. Second, the salary is divided by the general salary increase assumption for each year the member has been inactive as measured from the base year.
- While the DRS reports salaries earned during the year prior to the valuation date, the salaries used in the first year of the valuation process received an additional salary increase. In other words, the valuation software projects salaries to the coming year, beginning the day after the valuation date.
- All systems use a midyear decrement timing assumption.
- We set termination rates to zero after members become eligible to retire.

## Summary of Plan Provisions

| Summary of Plan Provisions                             |  |
|--|--|
| <b>Effective Date of Plan</b>                          | 10/1/77  |
| <b>Date Closed to New Entrants</b>                     | Open   |
| <b>Statutory Reference</b>                             | Chapter 41.26 RCW  |
| <b>Normal Retirement Eligibility (age/service)</b>     | 53/5   |
| <b>Accrued Benefit Formula</b>                         | 2% x YOS x AFC; 0.25% per month pre-retirement COLA with 20 years of service   |
| <b>Computation of FAS</b>                              | Average compensation earnable for the highest 60 consecutive months  |
| <b>Credited Service</b>                                | Monthly, based on hours worked each month  |
| <b>Vesting</b>   | 5 years  |
| <b>Vested Benefits Upon Termination</b>                | Refund of employee contributions (x 150% if 10 YOS) plus interest, or deferred retirement allowance  |
| <b>Early Retirement Eligibility (age/service)</b>      | 50/20  |
| <b>Early Retirement Reduction Factors</b>              | 3% ERF with 20 YOS   |
| <b>Disability Retirement Benefit</b>                   | Non-duty: accrued benefit, actuarially reduced; Duty, occupational: accrued benefit without actuarial reduction, minimum 10% of FAS; Duty, total: 70% of FAS with offsets for Social Security and L&I benefits, not to exceed 100% of FAS. |
| <b>COLA</b>  | Lesser of CPI* or 3%   |
| <b>Minimum Benefit per Month per YOS</b>               | n/a  |
| <b>Changes in Plan Provisions Since Last Valuation</b> | Alternate Revenue Source (Ch 99 L 08)  |

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

| Early Retirement Reduction Factors |                   |                 | Early Retirement Reduction Factors<br>(Continued) |                   |                 |
|------------------------------------|-------------------|-----------------|---|-------------------|-----------------|
| Years Early                        | LEOFF2,<br>WSPRS* | Subsidized 3%** | Years   | LEOFF2,<br>WSPRS* | Subsidized 3%** |
| 0                                  | 1.0000            | 1.00            | 25  | 0.1400            | N/A             |
| 1                                  | 0.9200            | 0.97            | 26  | 0.1300            | N/A             |
| 2                                  | 0.8400            | 0.94            | 27  | 0.1200            | N/A             |
| 3                                  | 0.7600            | 0.91            | 28  | 0.1100            | N/A             |
| 4                                  | 0.7100            | N/A             | 29  | 0.1000            | N/A             |
| 5                                  | 0.6600            | N/A             | 30  | 0.1000            | N/A             |
| 6                                  | 0.6100            | N/A             | 31  | 0.1000            | N/A             |
| 7                                  | 0.5600            | N/A             | 32  | 0.1000            | N/A             |
| 8                                  | 0.5100            | N/A             | 33  | 0.1000            | N/A             |
| 9                                  | 0.4700            | N/A             | 34  | 0.1000            | N/A             |
| 10                                 | 0.4300            | N/A             | 35  | 0.1000            | N/A             |
| 11                                 | 0.3900            | N/A             | 36  | 0.1000            | N/A             |
| 12                                 | 0.3500            | N/A             | 37  | 0.1000            | N/A             |
| 13                                 | 0.3100            | N/A             | 38  | 0.1000            | N/A             |
| 14                                 | 0.2900            | N/A             | 39  | 0.1000            | N/A             |
| 15                                 | 0.2700            | N/A             | 40  | 0.1000            | N/A             |
| 16                                 | 0.2500            | N/A             | 41  | 0.1000            | N/A             |
| 17                                 | 0.2300            | N/A             | 42  | 0.1000            | N/A             |
| 18                                 | 0.2100            | N/A             | 43  | 0.1000            | N/A             |
| 19                                 | 0.2000            | N/A             | 44  | 0.1000            | N/A             |
| 20                                 | 0.1900            | N/A             | 45  | 0.1000            | N/A             |
| 21                                 | 0.1800            | N/A             | 46  | 0.1000            | N/A             |
| 22                                 | 0.1700            | N/A             | 47  | 0.1000            | N/A             |
| 23                                 | 0.1600            | N/A             | 48  | 0.1000            | N/A             |
| 24                                 | 0.1500            | N/A             | 49  | 0.1000            | N/A             |

\*Terminated Vested only.

\*\*LEOFF 2 members must be at least age 50 with 20 or more years of service to qualify.

## Age/Service Distribution

**Age and Service Distribution of Active Law Enforcement Officers  
(Number of Actives and Average Annual Salary)**

| Attained Age | Attained Years of Service |            |                         |            |                             |              |              |              |            |            | Total     |          |              |   |
|--------------|---------------------------|------------|-------------------------|------------|-----------------------------|--------------|--------------|--------------|------------|------------|-----------|----------|--------------|---|
|              | 0                         | 1          | 2                       | 3          | 4                           | 5-9          | 10-14        | 15-19        | 20-24      | 25-29      | 30-34     | 35-39    | 40 & Over    |   |
| Under 25     | 53                        | 58         | 20                      | 1          | 0                           | 0            | 0            | 0            | 0          | 0          | 0         | 0        | 0            | 0 |
| 25-29        | \$47,855                  | \$49,452   | \$59,760                | *          | \$0                         | \$0          | \$0          | \$0          | \$0        | \$0        | \$0       | \$0      | \$50,295     |   |
| 30-34        | \$48,476                  | \$52,283   | \$59,135                | \$62,876   | \$64,776                    | \$69,226     | *            | \$0          | \$0        | \$0        | \$0       | \$0      | \$58,303     |   |
| 35-39        | \$50,111                  | \$53,102   | \$60,057                | \$65,077   | \$65,517                    | \$71,923     | \$75,555     | \$0          | \$0        | \$0        | \$0       | \$0      | \$67,202     |   |
| 40-44        | \$50,758                  | \$55,079   | \$66,175                | \$63,080   | \$69,238                    | \$71,803     | \$75,948     | \$82,385     | \$0        | \$0        | \$0       | \$0      | \$72,332     |   |
| 45-49        | \$54,730                  | \$50,780   | \$72,617                | \$62,171   | \$68,730                    | \$70,325     | \$76,555     | \$81,556     | \$86,683   | \$91,412   | \$0       | \$0      | \$81,161     |   |
| 50-54        | \$67,936                  | \$73,472   | \$76,451                | \$54,474   | \$71,599                    | \$71,869     | \$73,544     | \$79,296     | \$83,652   | \$90,366   | \$92,975  | \$0      | \$83,268     |   |
| 55-59        | \$66,397                  | \$131,818  | \$70,426                | \$79,539   | \$77,115                    | \$73,774     | \$74,050     | \$82,844     | \$85,468   | \$94,325   | \$0       | \$0      | \$81,157     |   |
| 60-64        | \$78,517                  | \$0        | \$70,444                | \$86,334   | \$70,564                    | \$74,162     | \$76,576     | \$87,763     | \$67,506   | \$0        | \$0       | \$0      | \$77,639     |   |
| 65-69        | \$0                       | \$0        | \$0                     | \$0        | \$0                         | \$0          | \$0          | \$0          | \$0        | \$0        | \$0       | \$0      | \$0          |   |
| 70 & Over    | \$0                       | \$0        | \$0                     | \$0        | \$0                         | \$0          | \$0          | \$0          | \$0        | \$0        | \$0       | \$0      | \$0          |   |
| <b>Total</b> | <b>311</b>                | <b>571</b> | <b>470</b>              | <b>354</b> | <b>378</b>                  | <b>2,034</b> | <b>1,747</b> | <b>1,627</b> | <b>942</b> | <b>772</b> | <b>19</b> | <b>0</b> | <b>9,225</b> |   |
| Average:     | Age                       | 40.9       | Number of Participants: | Vested     | 6,984                       |              |              |              |            |            |           |          |              |   |
|              | Service                   | 11.8       | Not Vested              | 2,241      |                             |              |              |              |            |            |           |          |              |   |
|              |                           |            | Males                   | 8,311      | Early Retirement Eligible:  | 471          |              |              |            |            |           |          |              |   |
|              |                           |            | Females                 | 914        | Normal Retirement Eligible: | 878          |              |              |            |            |           |          |              |   |

\*Annual Salary omitted for privacy reasons.  
Numbers of participants eligible for early and normal retirement are estimates only.

**Age and Service Distribution of Active Fire Fighters**  
**(Number of Actives and Average Annual Salary)**

*(Continued)*

|              |            | Attained Years of Service |                         |            |            |              |              |                             |                            |            |          |          |          |          |          |          |          |          |          |          |          |          |          |          | Total    |              |          |       |
|--------------|------------|---------------------------|-------------------------|------------|------------|--------------|--------------|-----------------------------|----------------------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|----------|-------|
|              |            | 0                         |                         | 1          |            | 2            |              | 3                           |                            | 4          |          | 5-9      |          | 10-14    |          | 15-19    |          | 20-24    |          | 25-29    |          | 30-34    |          | 35-39    |          | 40 & Over    |          | Total |
| Attained Age | Under 25   | 38                        | 46                      | 16         | 7          | 1            | 0            | 0                           | 0                          | 0          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            | 0        | 0     |
|              | \$49,143   | \$50,806                  | \$61,053                | \$59,319   | *          |              | \$0          | \$0                         | \$0                        | \$0        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0          | \$0      |       |
| 25-29        | 76         | 128                       | 106                     | 55         | 73         | 132          | 0            | 0                           | 0                          | 0          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            | \$52,420 |       |
| 30-34        | 47         | 80                        | 74                      | 60         | 103        | 510          | 93           | 1                           | 0                          | 0          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            | 0        |       |
| 35-39        | 28         | 51                        | 54                      | 59         | 75         | 501          | 507          | 162                         | 0                          | 0          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            | 0        |       |
| 40-44        | 3          | 20                        | 17                      | 24         | 24         | 231          | 355          | 438                         | 128                        | 2          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 45-49        | 3          | 11                        | 12                      | 8          | 9          | 108          | 206          | 344                         | 317                        | 191        | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 50-54        | 1          | 1                         | 5                       | 4          | 4          | 57           | 76           | 197                         | 214                        | 370        | 2        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 55-59        | 1          | 4                         | 6                       | 1          | 3          | 23           | 20           | 50                          | 73                         | 154        | 2        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 60-64        | 0          | 0                         | 0                       | 0          | 1          | 2            | 10           | 5                           | 8                          | 10         | 23       | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 65-69        | 0          | 1                         | 1                       | 0          | 0          | 1            | 1            | 3                           | 3                          | 1          | 1        | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| 70 & Over    | 0          | 0                         | 0                       | 0          | 0          | 0            | 0            | 0                           | 0                          | 0          | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0            |          |       |
| <b>Total</b> | <b>197</b> | <b>342</b>                | <b>291</b>              | <b>219</b> | <b>294</b> | <b>1,573</b> | <b>1,265</b> | <b>1,203</b>                | <b>743</b>                 | <b>741</b> | <b>6</b> | <b>0</b> | <b>6,874</b> |          |       |
|              | \$49,168   | \$52,876                  | \$61,235                | \$64,555   | \$70,737   | \$76,264     | \$81,730     | \$86,303                    | \$92,405                   | \$96,217   | \$92,020 | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0          | \$79,750 |       |
| Average:     | Age        | 41.2                      | Number of Participants: |            | Vested     | 5,407        | Males        | 6,476                       | Early Retirement Eligible: | 400        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |              |          |       |
|              | Service    | 12.4                      | Not Vested              |            | 1,467      | Females      | 398          | Normal Retirement Eligible: | 651                        |            |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |              |          |       |

\*Annual Salary omitted for privacy reasons.

Numbers of participants eligible for early and normal retirement are estimates only.

## Age/Years Retired Distribution

|              |           | Attained Years Retired |           |           |           |            |           |          |          |          |          | Total     |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|--------------|-----------|------------------------|-----------|-----------|-----------|------------|-----------|----------|----------|----------|----------|-----------|----------|------------|------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------------|-------|--|
|              |           | 0                      |           | 1         |           | 2          |           | 3        |          | 4        |          | 5-9       |          | 10-14      |            | 15-19         |            | 20-24      |            | 25-29      |            | 30-34      |            | 35-39      |            | 40 & Over  |                | Total |  |
| Attained Age |           | Under 50               | 50-54     | 55-59     | 60-64     | 65-69      | 70-74     | 75-79    | 80-84    | 85-89    | 90-94    | 95 & Over | Total    | Average:   | Age        | Years Retired | Males      | Females    |            |            |            |            |            |            |            |            |                |       |  |
| Under 50     | 0         | 0                      | 0         | 0         | 0         | 0          | 0         | 0        | 0        | 0        | 0        | 0         | \$0      |            |            |               | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0              | 0     |  |
| 50-54        | \$0       | \$0                    | \$0       | \$0       | \$0       | \$0        | \$0       | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 55-59        | \$2,592   | \$2,285                | \$2,762   | \$2,270   | \$2,122   | \$0        | \$0       | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 60-64        | \$2,952   | \$2,470                | \$2,220   | \$2,145   | \$1,669   | \$1,407    | \$0       | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 65-69        | \$2,724   | \$2,696                | \$2,240   | \$2,187   | \$1,839   | \$1,386    | \$0       | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 70-74        | \$2,001   | \$1,555                | \$1,428   | \$1,684   | \$1,324   | \$1,210    | \$857     | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 75-79        | 0         | 0                      | 0         | 0         | 1         | 1          | 4         | 8        | 1        | 4        | 1        | 2         | 2        | 1          | 0          | 0             | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0              |       |  |
| 80-84        | *         | \$0                    | \$0       | *         | \$0       | \$1,758    | \$774     | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0        | \$0        | \$0           | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0        | \$0            |       |  |
| 85-89        | 0         | 0                      | 0         | 0         | 0         | 0          | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0          | 0          | 0             | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0              |       |  |
| 90-94        | 0         | 0                      | 0         | 0         | 0         | 0          | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0          | 0          | 0             | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0              |       |  |
| 95 & Over    | 0         | 0                      | 0         | 0         | 0         | 0          | 0         | 0        | 0        | 0        | 0        | 0         | 0        | 0          | 0          | 0             | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0              |       |  |
| <b>Total</b> | <b>54</b> | <b>110</b>             | <b>96</b> | <b>70</b> | <b>44</b> | <b>122</b> | <b>20</b> | <b>3</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b>  | <b>0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b>    | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b> | <b>\$0</b>     |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            | <b>520</b>     |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            | <b>\$1,992</b> |       |  |
| Average:     |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           |           |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |
|              |           |                        |           |           | </        |            |           |          |          |          |          |           |          |            |            |               |            |            |            |            |            |            |            |            |            |            |                |       |  |

### **Age and Years Retired Distribution of Service Retired Fire Fighters (Number of Service Retired Members and Average Monthly Benefit)**

*(Continued)*

\*Monthly benefit omitted for privacy reasons.

**Age and Years Retired Distribution of All Disabled Law Enforcement Officers  
(Number of All Disabled Members and Average Monthly Benefit)**

(Continued)

**LEOFF Plan 2:  
Attained Age**

|                      | 0             | 1       | 2       | 3             | 4       | 5-9   | 10-14 | 15-19 | 20-24 | 25-29 | 30-34   | 35-39 | 40 & Over | Total   |
|----------------------|---------------|---------|---------|---------------|---------|-------|-------|-------|-------|-------|---------|-------|-----------|---------|
| <b>Under 50</b>      | 0             | 3       | 4       | 0             | 2       | 8     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 0       |
| \$0                  | \$1,325       | \$1,129 | \$0     | \$725         | \$619   | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$876   |
| <b>50-54</b>         | 0             | 5       | 4       | 5             | 1       | 5     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 20      |
| \$0                  | \$2,431       | \$2,845 | \$1,941 | *             | \$507   | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$1,854 |
| <b>55-59</b>         | 3             | 2       | 7       | 3             | 2       | 4     | 0     | 1     | 0     | 0     | 0       | 0     | 0         | 22      |
| \$1,858              | \$2,358       | \$2,150 | \$2,149 | \$2,510       | \$1,197 | \$0   | *     | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$1,897 |
| <b>60-64</b>         | 0             | 2       | 1       | 3             | 0       | 4     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 10      |
| \$0                  | \$2,608       | *       | \$1,968 | \$0           | \$1,519 | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$1,781 |
| <b>65-69</b>         | 0             | 0       | 0       | 0             | 0       | 1     | 1     | 0     | 0     | 0     | 0       | 0     | 0         | 2       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | *     | *     | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$719   |
| <b>70-74</b>         | 0             | 0       | 0       | 0             | 0       | 1     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 1       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | *     | *     | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$227   |
| <b>75-79</b>         | 0             | 0       | 0       | 0             | 0       | 0     | 0     | 0     | 1     | 1     | 0       | 0     | 0         | 2       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | \$0   | \$0   | *     | *     | \$0   | \$0     | \$0   | \$0       | \$0     |
| <b>80-84</b>         | 0             | 0       | 0       | 0             | 0       | 0     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 0       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$0     |
| <b>85-89</b>         | 0             | 0       | 0       | 0             | 0       | 0     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 0       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$0     |
| <b>90-94</b>         | 0             | 0       | 0       | 0             | 0       | 0     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 0       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$0     |
| <b>95 &amp; Over</b> | 0             | 0       | 0       | 0             | 0       | 0     | 0     | 0     | 0     | 0     | 0       | 0     | 0         | 0       |
| \$0                  | \$0           | \$0     | \$0     | \$0           | \$0     | \$0   | \$0   | \$0   | \$0   | \$0   | \$0     | \$0   | \$0       | \$0     |
| <b>Total</b>         | 3             | 12      | 16      | 11            | 5       | 23    | 1     | 1     | 1     | 1     | 0       | 0     | 0         | 74      |
|                      | \$1,858       | \$2,172 | \$1,972 | \$2,005       | \$1,556 | \$859 | *     | *     | *     | *     | \$0     | \$0   | \$0       | \$1,538 |
| Average:             | Years Retired | Age     | 54.5    | Years Retired | 4.2     |       |       |       |       |       | Males   | 64    |           |         |
|                      |               |         |         |               |         |       |       |       |       |       | Females | 10    |           |         |

\*Monthly benefit omitted for privacy reasons.

**Age and Years Retired Distribution of All Disabled Fire Fighters  
(Number of All Disabled Members and Average Monthly Benefit)**

*(Continued)*

|         |    |
|---------|----|
| Males   | 34 |
| Females | 4  |

\*Monthly benefit omitted for privacy reasons.

**Age and Years Retired Distribution of Survivors of Law Enforcement Officers**  
**(Number of Survivors and Average Monthly Benefit)**

(Continued)

|              |                | Attained Years Retired |          |          |          |          |          |          |          |          |          | Total    |          |           |           |
|--------------|----------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
|              |                | 0                      | 1        | 2        | 3        | 4        | 5-9      | 10-14    | 15-19    | 20-24    | 25-29    | 30-34    | 35-39    | 40 & Over | 0         |
|              |                | Under 50               | \$0      | \$0      | \$1,991  | \$1,600  | \$1,358  | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0       | 0         |
| 50-54        | \$1,831        | 2                      | \$0      | 0        | 0        | 1        | 2        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | \$0       |
| 55-59        | 0              | 1                      | 1        | 1        | 1        | 2        | *        | \$1,163  | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 60-64        | \$0            | *                      | *        | *        | *        | *        | *        | \$1,243  | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 65-69        | 0              | 0                      | 0        | 0        | 0        | 0        | 0        | \$1,224  | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 70-74        | 0              | 0                      | 0        | 0        | 0        | 0        | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 0         | \$0       |
| 75-79        | 0              | 0                      | 0        | 0        | 0        | 0        | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 80-84        | 0              | 0                      | 0        | 0        | 0        | 0        | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 85-89        | 0              | 0                      | 0        | 0        | 0        | 0        | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 90-94        | 0              | 0                      | 0        | 0        | 0        | 0        | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| 95 & Over    | 0              | 0                      | 0        | 0        | 0        | 0        | *        | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | 0         | \$0       |
| <b>Total</b> | <b>\$1,831</b> | <b>2</b>               | <b>2</b> | <b>3</b> | <b>5</b> | <b>5</b> | <b>9</b> | <b>2</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>  | <b>29</b> |
| Average:     |                | Age                    | 53.0     |          | Males    | 1        |          |          |          |          |          |          |          |           |           |
|              |                | Years Retired          | 4.6      |          | Females  | 28       |          |          |          |          |          |          |          |           |           |

\*Monthly benefit omitted for privacy reasons.

## Age and Years Retired Distribution of Survivors of Fire Fighters

(Number of Survivors and Average Monthly Benefit)

(Continued)

|              |          | Attained Years Retired |          |          |          |          |          |          |          |          |          | 40 & Over |          |           |            | Total   |
|--------------|----------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|-----------|------------|---------|
|              |          | 0                      | 1        | 2        | 3        | 4        | 5-9      | 10-14    | 15-19    | 20-24    | 25-29    | 30-34     | 35-39    | 40 & Over |            |         |
| Attained Age | 0        | \$0                    | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 4          |         |
| Under 50     | 0        | \$0                    | \$1,817  | \$2,056  | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| 50-54        | 0        | \$0                    | 1        | 1        | 0        | 1        | 0        | 0        | 0        | 0        | 0        | 0         | 0        | 0         | 0          | \$1,937 |
| 55-59        | 1        | *                      | *        | *        | *        | *        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          | 4       |
| 60-64        | 0        | 0                      | 0        | 0        | 0        | 0        | 0        | 1        | 0        | 0        | 0        | 0         | 0        | 0         | 0          | \$1,795 |
| 65-69        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| 70-74        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          | \$1,842 |
| 75-79        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 1          |         |
| 80-84        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| 85-89        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| 90-94        | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| 95 & Over    | 0        | 0                      | 0        | 0        | 0        | 0        | \$0      | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          |         |
| <b>Total</b> | <b>1</b> | <b>4</b>               | <b>3</b> | <b>2</b> | <b>0</b> | <b>3</b> | <b>4</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>  | <b>0</b> | <b>0</b>  | <b>18</b>  |         |
| Average:     |          | \$1,886                | \$1,819  | \$2,342  | \$0      | \$1,203  | \$430    | *        | \$0      | \$0      | \$0      | \$0       | \$0      | \$0       | 0          | \$1,509 |
|              |          | Years Retired          | Age      | 55.8     |          |          |          |          |          |          |          |           |          |           | Males 1    |         |
|              |          |                        |          | 5.5      |          |          |          |          |          |          |          |           |          |           | Females 17 |         |

*\*Monthly benefit omitted for privacy reasons.*

## Historical Data

| (Dollars in millions)                | Historical Data   |         |         |         |         |         |
|--------------------------------------|-------------------|---------|---------|---------|---------|---------|
|                                      | 2007 <sup>1</sup> | 2006    | 2005    | 2004    | 2003    | 2002    |
| <b>Contribution Information</b>      |                   |         |         |         |         |         |
| Employer Rate                        | 4.56%             | 4.66%   | 4.86%   | 4.57%   | 4.32%   | 3.84%   |
| State Rate                           | 3.04%             | 3.11%   | 3.24%   | 3.03%   | 2.88%   | 2.57%   |
| Employee Rate                        | 7.60%             | 7.77%   | 8.10%   | 7.60%   | 7.20%   | 6.41%   |
| <b>Funded Status</b>                 |                   |         |         |         |         |         |
| Credited Projected Liability         | \$3,386           | \$3,323 | \$2,932 | \$2,521 | \$2,194 | \$1,937 |
| Market Value of Assets               | \$5,185           | \$4,339 | \$3,614 | \$2,984 | \$2,541 | \$2,136 |
| Actuarial Value of Assets            | \$4,360           | \$3,844 | \$3,329 | \$2,947 | \$2,740 | \$2,646 |
| Unfunded Liability                   | (\$974)           | (\$521) | (\$397) | (\$426) | (\$547) | (\$709) |
| Funded Ratio                         | 128.76%           | 115.68% | 113.53% | 116.89% | 124.91% | 136.62% |
| <b>Participant Data</b>              |                   |         |         |         |         |         |
| Number of Actives                    | 16,099            | 15,718  | 15,168  | 14,754  | 14,560  | 14,011  |
| Total Annual Salaries                | \$1,234           | \$1,172 | \$1,092 | \$1,020 | \$967   | \$902   |
| Number of Terminated Vested          | 629               | 597     | 570     | 521     | 439     | 376     |
| Number of Terminated, Not Vested     | 1,433             | 1,362   | 1,285   | 1,233   | 1,186   | 1,137   |
| Number of Retirees and Beneficiaries | 924               | 779     | 574     | 432     | 316     | 244     |
| Total Annual Benefits                | \$22              | \$17    | \$11    | \$8     | \$5     | \$3     |
| <b>Assumptions</b>                   |                   |         |         |         |         |         |
| Valuation Interest Rate              | 5.94%             | 8.00%   | 8.00%   | 8.00%   | 8.00%   | 8.00%   |
| Salary Increase                      | 5.49%             | 7.40%   | 7.40%   | 7.60%   | 7.70%   | 7.80%   |
| Inflation <sup>2</sup>               | 3.50%             | 3.50%   | 3.50%   | 3.50%   | 3.50%   | 3.50%   |
| Growth in Membership                 | 0.94%             | 1.25%   | 1.25%   | 1.25%   | 1.25%   | 1.25%   |
| <b>Actuarial Experience</b>          |                   |         |         |         |         |         |
| Return on Market Value               | 16.61%            | 15.77%  | 17.55%  | 13.64%  | 15.13%  | (6.31%) |
| Return on Actuarial Value            | 10.03%            | 10.80%  | 9.30%   | 4.10%   | 0.60%   | 0.10%   |
| Salary Increase                      | 4.31%             | 5.50%   | 5.90%   | 5.20%   | 4.80%   | 7.00%   |
| Inflation                            | 3.73%             | 3.02%   | 1.57%   | 1.41%   | 1.81%   | 3.55%   |
| Growth in Membership                 | 1.83%             | 2.66%   | 1.85%   | 0.33%   | 2.59%   | 1.73%   |
| COLA <sup>3</sup>                    | 3.00%             | 3.00%   | 3.00%   | 3.00%   | 3.00%   | 3.00%   |

<sup>1</sup>For the 2007 valuation, the salary, interest, and growth rates were not annualized.

They reflect the actual valuation period of nine months.

<sup>2</sup>Based on the assumption for prior year's CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.

<sup>3</sup>COLA is based on the CPI (3% maximum per year).

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## Glossary

### ***Actuarial Accrued Liability***

Computed differently under different funding methods, the actuarial accrued liability generally represents the portion of the present value of fully projected benefits attributable to service credit earned (or accrued) as of the valuation date.

### ***Actuarial Gain or Loss***

Experience of the plan, from one year to the next, which differs from that assumed, results in an actuarial gain or loss. For example, an actuarial gain would occur if assets earned 10 percent for a given year since the assumed interest rate in the valuation is 8 percent.

### ***Actuarial Value of Assets***

The value of pension plan investments and other property used by the actuary for the purpose of an actuarial valuation (sometimes referred to as valuation assets). Actuaries commonly select an asset valuation method that smoothes the effects of short-term volatility in the market value of assets.

### ***Entry Age Normal Cost (EANC) Funding Method***

The EANC funding method is a standard actuarial funding method. The annual cost of benefits under EANC is comprised of two components:

- Normal cost; plus
- Amortization of the unfunded actuarial accrued liability.

The normal cost is determined on an individual basis, from a member's age at plan entry, and is designed to be a level percentage of pay throughout a member's career.

### ***Funded Ratio***

A ratio of a plan's current assets to the present value of earned pensions. Actuaries use several methods to measure a plan's assets and liabilities. In financial reporting of public pension plans, funded status is reported using consistent measures by all governmental entities. According to the Governmental Accounting Standards Board (GASB), the funded ratio equals the actuarial value of assets divided by the actuarial accrued liability calculated under the Projected Unit Credit cost method.

### ***Normal Cost***

Computed differently under different funding methods, the normal cost generally represents the portion of the cost of projected benefits allocated to the current plan year. The employer normal cost equals the total normal cost of the plan reduced by employee contributions.

### ***Present Value of Fully Projected Benefits***

Computed by projecting the total future benefit payments from the plan, using actuarial assumptions (i.e., probability of death or retirement, salary increases, etc.), and discounting the payments to the valuation date using the valuation interest rate to determine the present value (today's value).

### ***Projected Unit Credit (PUC) Funding Method***

The PUC funding method is a standard actuarial funding method. The annual cost of benefits under PUC is comprised of two components:

- Normal cost; plus
- Amortization of the unfunded actuarial accrued liability.

The PUC normal cost equals the difference between the accrued liability at the beginning and end of the plan year.

### ***Unfunded Actuarial Accrued Liability (UAAL)***

The excess, if any, of the actuarial accrued liability over the actuarial value of assets. In other words, the present value of benefits earned to date not covered by current plan assets.





WASHINGTON STATE  
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and Fire Fighters'  
Plan 2 Retirement Board**

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