## Actuarial Methods and Assumptions

To calculate the contribution rates necessary to pre-fund the plan's benefits, an actuary uses an actuarial cost method, asset valuation method, economic assumptions, and demographic assumptions.

### *Actuarial Cost Methods*

The future benefit obligations (or costs of the plan) are spread over the working lifetimes of the plan members based on the actuarial cost method (or funding method) in place for the plan. This produces a future stream of contributions to pre-fund the plan's benefits. Different cost methods pre-fund plans at different rates. Some put more money in earlier whereas others put more money in later.

Actuarial cost methods generally have two parts, which serve to:

- Fund future benefits in a consistent manner from year to year.
- Make up for any shortfalls in prior funding, including differences in funding when experience differs from assumptions.

The two parts of an actuarial cost method are:

- **The Normal Cost** – the value of future benefits allocated to the current plan year under the actuarial cost method.
- **Amortization of the Unfunded Actuarial Accrued Liability (UAAL)** – where the UAAL represents the amount of past service liability that exceeds the value of the plan's assets.

The Legislature was responsible for the selection of the actuarial cost and asset valuation methods. The actuarial cost methods for the Washington State retirement systems are as follows.

**Public Employees' Retirement System (PERS) Plan 1 and Teachers' Retirement System (TRS) Plan 1:** We use a variation of the Entry Age Normal Cost Method (EANC) to determine the actuarial accrued liability. Under this method, the UAAL is equal to the unfunded actuarial present value of projected benefits less the actuarial present value of future normal costs for all active members and is reset at each valuation date. The present value of future normal costs is based on the Aggregate Normal Cost rate for Plans 2/3 and the resulting UAAL is amortized over a rolling ten-year period, as a level percentage of projected system payroll. The projected payroll includes pay from Plan 2 and Plan 3 as well as projected payroll from future new entrants.

As a result of this hybrid method, employers are charged the same contribution rate, regardless of the plan in which employees hold membership.

The method is subject to maximum contribution rates prior to 2015 and minimum contribution rates thereafter.

**Law Enforcement Officers' and Fire Fighters' (LEOFF) Plan 1:** A variation of the Frozen Initial Liability Cost Method is used to determine the normal cost and the actuarial accrued liability for retirement, termination, and ancillary benefits. Under this method, the UAAL is equal to the unfunded actuarial present value of projected benefits less the actuarial present value of future normal costs for all active members and is reset at each valuation date. The present value of future normal costs is based on the Aggregate normal cost rate for Plan 2 and the resulting UAAL is amortized by June 30, 2024, as a level percentage of projected system payroll. The projected payroll includes pay from Plan 2 as well as projected payroll from future new entrants.

**Plans 2 and Plans 3:** We use the Aggregate Cost Method to determine the normal cost and the actuarial accrued liability. Under this method, the unfunded actuarial present value of fully projected benefits is amortized over the future payroll of the active group. Plan 2 members pay 50 percent of the normal cost. The entire contribution is considered normal cost and no UAAL exists.

For TRS Plan 2, the maximum employee contribution rate is 6.59 percent plus 50 percent of the contribution rate increases from benefit improvements effective on or after July 1, 1996. The

employer picks up any employee cost sharing that exceeds the employee rate maximum. Please see the **Actuarial Exhibits** section for a table showing the current TRS Plan 2 maximum member contribution rates.

**Washington State Patrol Retirement System (WSPRS):** We use the Aggregate Cost Method to determine the normal cost and the actuarial accrued liability. The entire normal cost is divided equally between the employee and the employer. The maximum employee contribution rate is 7 percent plus 50 percent of the contribution rate increases from benefit improvements effective on or after July 1, 2007. The employer picks up any employee cost sharing that exceeds the employee rate maximum. Please see the **Actuarial Exhibits** section for a table showing the current WSPRS Plans 1/2 maximum member contribution rates.

In this valuation, we use the Projected Unit Credit (PUC) cost method to report the plan's funded status. 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 liabilities. Comparing the PUC liabilities to the actuarial value of assets on the valuation date provides an appropriate measure of a plan's funded status. Under current Governmental Accounting Standards Board (GASB) rules, the PUC method is one of several acceptable measures of a plan's funded status. Use of another cost method could also be considered appropriate and could produce materially different results.

Please see the Glossary for a further explanation of the PUC cost method.

GASB Statements 67 and 68 become effective after June 15, 2015, replace the current GASB Statements, and require use of the EANC for accounting purposes. We will begin reporting the EANC funded status with the next actuarial valuation report, as of June 30, 2014.

We use the plan's assets to calculate contribution rates, unfunded liabilities, and the plan's funded status. Because the market value of assets can be volatile from one year to the next, an asset valuation method is generally used to adjust the market value of assets and smooth the effects of short-term volatility. The adjusted assets are called the actuarial value of assets, or valuation assets.

For this valuation, we calculate the Actuarial Value of Assets (AVA) using an asset smoothing method. This smoothing method was adopted during the 2003 Legislative Session. Each year, beginning with the application of this smoothing method, we determine the amount the actual investment return exceeds (or falls below) the expected investment return and we smooth that year's gain (or loss) based on the scale in the table below.

Additionally, to ensure the AVA maintains a reasonable relationship to the Market Value of Assets (MVA), a 30 percent corridor is in place. This means the AVA may not exceed 130 percent nor drop below 70 percent of the MVA in any valuation.

| Annual Gain/Loss | | | |
|---|---|---|---|
| Rate of Return, LEOFF 2 | Rate of Return, All Other Plans | Smoothing Period | Annual Recognition |
| 14.5% and up | 14.9% and up | 8 years | 12.50% |
| 13.5-14.5% | 13.9-14.9% | 7 years | 14.29% |
| 12.5-13.5% | 12.9-13.9% | 6 years | 16.67% |
| 11.5-12.5% | 11.9-12.9% | 5 years | 20.00% |
| 10.5-11.5% | 10.9-11.9% | 4 years | 25.00% |
| 9.5-10.5% | 9.9-10.9% | 3 years | 33.33% |
| 8.5-9.5% | 8.9-9.9% | 2 years | 50.00% |
| 6.5-8.5% | 6.9-8.9% | 1 year | 100.00% |
| 5.5-6.5% | 5.9-6.9% | 2 years | 50.00% |
| 4.5-5.5% | 4.9-5.9% | 3 years | 33.33% |
| 3.5-4.5% | 3.9-4.9% | 4 years | 25.00% |
| 2.5-3.5% | 2.9-3.9% | 5 years | 20.00% |
| 1.5-2.5% | 1.9-2.9% | 6 years | 16.67% |
| 0.5-1.5% | 0.9-1.9% | 7 years | 14.29% |
| 0.5% and lower | 0.9% and lower | 8 years | 12.50% |

## Economic Assumptions

These generally include the annual rate of return on plan assets, annual rate of inflation, and annual rate of salary growth. The economic assumptions used in this actuarial valuation are prescribed by the Legislature, the PFC, and the LEOFF Plan 2 Retirement Board, and are shown in the following table.

| Economic Assumptions | | | | | | | |
|---|---|---|---|---|---|---|---|
| **By System** | | **PERS** | **TRS** | **SERS** | **PSERS** | **LEOFF** | **WSPRS** |
| Annual Growth in Membership | | 0.95% | 0.80% | 0.95% | 0.95% | 1.25% | 0.95% |
| Interest on Member Contributions[1] | | 5.50% | 5.50% | 5.50% | 5.50% | 5.50% | 5.50% |
| Return on Investment Earnings[2] | | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% |
| Inflation[3] | | 3.00% | 3.00% | 3.00% | 3.00% | 3.00% | 3.00% |
| General Salary Increases (includes inflation)[4] | | 3.75% | 3.75% | 3.75% | 3.75% | 3.75% | 3.75% |
| Annual COLA | Plan 1: | Minimum COLA[5] | Minimum COLA[5] | N/A | N/A | 3.00%[6] | 3.00%[7] |
| | Plan 2/3: | 3.00%[7] | 3.00%[7] | 3.00%[7] | 3.00%[7] | 3.00%[7] | 3.00%[7] |

[1] *Annual rate, compounded quarterly except for WSPRS, which is compounded monthly. This rate is set by the director of the Department of Retirement Systems.*

[2] *Effective for contribution rates beginning July 1, 2015. The rate is* 7.50% in LEOFF 2. *Annual rate, compounded annually,*

[3] *Based on the CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.*

[4] *Excludes longevity, merit or step increases that usually apply to members in the early part of their careers.*

[5] *The increase was $2.12 per month per year of service on 7/1/2014. Payable to qualified members. The Uniform COLA was removed under C 362 L 2011.*

[6] *Equal to the CPI.*

[7] *Based on the CPI (3% maximum per year).*

We adjust the general salary assumption for TRS each year to model the salary bonus payable to members who attain national board certification. These bonuses are includable in compensation for pension purposes.

| TRS General Salary Increase by Year | | |
|---|---|---|
| **Year** | **TRS 1** | **TRS 2/3** |
| **2013** | 3.80% | 3.80% |
| **2014** | 3.85% | 3.85% |
| **2015** | 3.77% | 3.77% |
| **2016** | 3.75% | 3.75% |
| **2017** | 3.75% | 3.75% |
| **2018** | 3.85% | 3.85% |
| **2019** | 3.84% | 3.84% |
| **2020** | 3.83% | 3.83% |
| **2021** | 3.83% | 3.82% |
| **2022** | 3.82% | 3.82% |
| **2023** | 3.81% | 3.81% |
| **2024** | 3.80% | 3.80% |
| **2025** | 3.79% | 3.79% |
| **2026** | 3.78% | 3.78% |
| **2027** | 3.77% | 3.77% |
| **2028** | 3.77% | 3.77% |
| **2029+** | 3.75% | 3.75% |

*Includes inflation.*

## Demographic Assumptions

These include rates of retirement, rates at which members become disabled, turnover rates, mortality rates, and several other demographic assumptions as disclosed later in this section.

## Changes in Methods and Assumptions Since the Last Valuation

- We changed the structure of PSERS termination benefits within our valuation software. We corrected the retirement age for terminated vested benefits to reflect eligibility based on PSERS service.
- We changed how we value survivor-beneficiary benefits under the Basic Minimum Cost Of Living Adjustment (COLA) for PERS 1 and TRS 1. We assume beneficiaries will receive 100 percent of the Basic Minimum COLA, regardless of the Joint and Survivor option selected by the member.

**Step Salary Increases by System**

| | PERS | | TRS | | SERS | | PSERS | | LEOFF | | WSPRS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Service Years | % Increase | Salary Ratio | % Increase | Salary Ratio | % Increase | Salary Ratio | % Increase | Salary Ratio | % Increase | Salary Ratio | % Increase | Salary Ratio |
| 0 | 6.00% | 1.367 | 5.10% | 1.573 | 6.60% | 1.382 | 6.00% | 1.367 | 10.70% | 1.827 | 8.50% | 1.642 |
| 1 | 6.00% | 1.290 | 5.10% | 1.496 | 6.60% | 1.297 | 6.00% | 1.290 | 10.70% | 1.650 | 8.50% | 1.513 |
| 2 | 4.70% | 1.217 | 3.90% | 1.424 | 3.90% | 1.217 | 4.70% | 1.217 | 7.50% | 1.491 | 6.00% | 1.395 |
| 3 | 3.60% | 1.162 | 3.90% | 1.370 | 2.80% | 1.171 | 3.60% | 1.162 | 5.90% | 1.387 | 5.00% | 1.316 |
| 4 | 2.90% | 1.122 | 3.50% | 1.319 | 2.30% | 1.139 | 2.90% | 1.122 | 3.70% | 1.310 | 5.00% | 1.253 |
| 5 | 2.20% | 1.090 | 3.00% | 1.274 | 2.10% | 1.113 | 2.20% | 1.090 | 2.60% | 1.263 | 5.00% | 1.194 |
| 6 | 1.50% | 1.067 | 2.70% | 1.237 | 1.60% | 1.090 | 1.50% | 1.067 | 1.80% | 1.231 | 3.50% | 1.137 |
| 7 | 1.20% | 1.051 | 2.70% | 1.205 | 1.20% | 1.073 | 1.20% | 1.051 | 1.40% | 1.209 | 0.60% | 1.098 |
| 8 | 0.90% | 1.039 | 2.60% | 1.173 | 1.20% | 1.061 | 0.90% | 1.039 | 1.30% | 1.192 | 0.60% | 1.092 |
| 9 | 0.70% | 1.029 | 2.40% | 1.143 | 0.90% | 1.048 | 0.70% | 1.029 | 1.20% | 1.177 | 0.60% | 1.085 |
| 10 | 0.50% | 1.022 | 2.20% | 1.116 | 0.90% | 1.039 | 0.50% | 1.022 | 1.70% | 1.163 | 0.60% | 1.079 |
| 11 | 0.40% | 1.017 | 2.00% | 1.092 | 0.70% | 1.029 | 0.40% | 1.017 | 1.20% | 1.144 | 0.60% | 1.072 |
| 12 | 0.30% | 1.013 | 1.80% | 1.071 | 0.50% | 1.022 | 0.30% | 1.013 | 1.20% | 1.130 | 0.40% | 1.066 |
| 13 | 0.30% | 1.010 | 1.50% | 1.052 | 0.40% | 1.017 | 0.30% | 1.010 | 1.20% | 1.117 | 0.40% | 1.062 |
| 14 | 0.20% | 1.007 | 1.20% | 1.037 | 0.30% | 1.013 | 0.20% | 1.007 | 1.20% | 1.104 | 0.40% | 1.057 |
| 15 | 0.20% | 1.005 | 0.90% | 1.024 | 0.20% | 1.010 | 0.20% | 1.005 | 1.20% | 1.090 | 0.40% | 1.053 |
| 16 | 0.20% | 1.003 | 0.50% | 1.015 | 0.20% | 1.008 | 0.20% | 1.003 | 1.00% | 1.078 | 0.40% | 1.049 |
| 17 | 0.10% | 1.001 | 0.20% | 1.010 | 0.20% | 1.006 | 0.10% | 1.001 | 1.00% | 1.067 | 0.40% | 1.045 |
| 18 | 0.00% | 1.000 | 0.10% | 1.008 | 0.20% | 1.004 | 0.00% | 1.000 | 1.00% | 1.056 | 0.40% | 1.041 |
| 19 | 0.00% | 1.000 | 0.10% | 1.007 | 0.10% | 1.002 | 0.00% | 1.000 | 1.00% | 1.046 | 0.40% | 1.037 |
| 20 | 0.00% | 1.000 | 0.10% | 1.006 | 0.10% | 1.001 | 0.00% | 1.000 | 1.00% | 1.036 | 0.40% | 1.032 |
| 21 | 0.00% | 1.000 | 0.10% | 1.005 | 0.00% | 1.000 | 0.00% | 1.000 | 0.50% | 1.025 | 0.40% | 1.028 |
| 22 | 0.00% | 1.000 | 0.10% | 1.004 | 0.00% | 1.000 | 0.00% | 1.000 | 0.50% | 1.020 | 0.40% | 1.024 |
| 23 | 0.00% | 1.000 | 0.10% | 1.003 | 0.00% | 1.000 | 0.00% | 1.000 | 0.50% | 1.015 | 0.40% | 1.020 |
| 24 | 0.00% | 1.000 | 0.10% | 1.002 | 0.00% | 1.000 | 0.00% | 1.000 | 0.50% | 1.010 | 0.40% | 1.016 |
| 25 | 0.00% | 1.000 | 0.10% | 1.001 | 0.00% | 1.000 | 0.00% | 1.000 | 0.50% | 1.005 | 0.40% | 1.012 |
| 26 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.40% | 1.008 |
| 27 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.40% | 1.004 |
| 28 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 |
| 29 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 |
| 30+ | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 | 0.00% | 1.000 |

- For all systems, except LEOFF 2, we assume a 7.8 percent interest rate.
- We updated assumed administrative factors consistent with those currently in use by the Department of Retirement Systems.
- We performed an experience study of the plans for the period 2007-2012. As a result of this study, we updated demographic assumptions. For a full description of the assumption changes see the *2007-2012 Experience Study.*

**Probability of Service Retirement (Hired before 5/1/2013)**

| | TRS | | | | | | | | | | SERS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan 1 | | | | Plan 2/3 | | | | | | Plan 2/3 | | | |
| | Service not equal to 30 years | | Service equal to 30 years | | Service less than 30 years | | Service equal to 30 years | | Service greater than 30 years | | Service less than 30 years | | Service greater than or equal to 30 years | |
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 0.00 | 0.20 | 0.36 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 0.22 | 0.20 | 0.36 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 0.22 | 0.20 | 0.36 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 0.22 | 0.20 | 0.36 | 0.30 | 0.02 | 0.02 | 0.22 | 0.19 | 0.13 | 0.12 | 0.01 | 0.02 | 0.12 | 0.12 |
| 56 | 0.22 | 0.20 | 0.36 | 0.30 | 0.02 | 0.03 | 0.22 | 0.21 | 0.15 | 0.14 | 0.02 | 0.02 | 0.12 | 0.12 |
| 57 | 0.22 | 0.20 | 0.36 | 0.30 | 0.02 | 0.04 | 0.22 | 0.23 | 0.17 | 0.16 | 0.03 | 0.02 | 0.12 | 0.12 |
| 58 | 0.22 | 0.20 | 0.39 | 0.30 | 0.02 | 0.05 | 0.28 | 0.25 | 0.19 | 0.18 | 0.04 | 0.03 | 0.12 | 0.12 |
| 59 | 0.22 | 0.26 | 0.42 | 0.30 | 0.04 | 0.06 | 0.34 | 0.27 | 0.21 | 0.22 | 0.05 | 0.04 | 0.16 | 0.25 |
| 60 | 0.22 | 0.20 | 0.42 | 0.30 | 0.06 | 0.07 | 0.41 | 0.29 | 0.23 | 0.20 | 0.06 | 0.05 | 0.12 | 0.12 |
| 61 | 0.22 | 0.23 | 0.42 | 0.40 | 0.14 | 0.15 | 0.48 | 0.41 | 0.25 | 0.22 | 0.15 | 0.13 | 0.21 | 0.20 |
| 62 | 0.35 | 0.26 | 0.56 | 0.50 | 0.22 | 0.23 | 0.55 | 0.53 | 0.36 | 0.32 | 0.24 | 0.21 | 0.30 | 0.28 |
| 63 | 0.30 | 0.22 | 0.48 | 0.46 | 0.20 | 0.21 | 0.50 | 0.49 | 0.33 | 0.30 | 0.22 | 0.20 | 0.28 | 0.26 |
| 64 | 0.25 | 0.29 | 0.40 | 0.46 | 0.55 | 0.48 | 0.55 | 0.53 | 0.55 | 0.49 | 0.56 | 0.52 | 0.57 | 0.48 |
| 65 | 0.36 | 0.36 | 0.70 | 0.55 | 0.48 | 0.40 | 0.48 | 0.40 | 0.48 | 0.40 | 0.39 | 0.36 | 0.39 | 0.36 |
| 66 | 0.36 | 0.36 | 0.70 | 0.55 | 0.41 | 0.32 | 0.41 | 0.32 | 0.41 | 0.32 | 0.22 | 0.24 | 0.22 | 0.24 |
| 67 | 0.32 | 0.28 | 0.70 | 0.55 | 0.34 | 0.24 | 0.34 | 0.24 | 0.34 | 0.24 | 0.22 | 0.23 | 0.22 | 0.23 |
| 68 | 0.28 | 0.28 | 0.70 | 0.55 | 0.27 | 0.24 | 0.27 | 0.24 | 0.27 | 0.24 | 0.22 | 0.22 | 0.22 | 0.22 |
| 69 | 0.28 | 0.28 | 0.70 | 0.55 | 0.27 | 0.42 | 0.27 | 0.42 | 0.27 | 0.42 | 0.22 | 0.21 | 0.22 | 0.21 |
| 70 | 0.22 | 0.28 | 1.00 | 0.55 | 0.27 | 0.30 | 0.27 | 0.30 | 0.27 | 0.30 | 0.22 | 0.20 | 0.22 | 0.20 |
| 71 | 0.22 | 0.28 | 1.00 | 0.55 | 0.41 | 0.30 | 0.41 | 0.30 | 0.41 | 0.30 | 0.20 | 0.19 | 0.20 | 0.19 |
| 72 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.18 | 0.18 | 0.18 | 0.18 |
| 73 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 74 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 75 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 76 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 77 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 78 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 79 | 0.22 | 0.21 | 1.00 | 1.00 | 0.55 | 0.30 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.16 | 0.17 |
| 80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Probability of Service Retirement (Hired before 5/1/2013)**

| | PERS | | | | | | PSERS | | LEOFF | | | WSPRS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan 1 | | Plans 2/3 | | | | Plan 2 | | Plan 1 | | Plan 2 | Plans 1/2 |
| | | | Service less than 30 years | | Service greater than or equal to 30 years | | | | Service less than 30 years | Service greater than or equal to 30 years | | |
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Male & Female | | Male & Female | Male & Female |
| 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 |
| 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 47 | 0.46 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 48 | 0.55 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 49 | 0.50 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 |
| 50 | 0.45 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.12 | 0.03 | 0.27 |
| 51 | 0.40 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.12 | 0.04 | 0.24 |
| 52 | 0.40 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.12 | 0.05 | 0.24 |
| 53 | 0.40 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.07 | 0.12 | 0.10 | 0.24 |
| 54 | 0.40 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.10 | 0.16 | 0.10 | 0.24 |
| 55 | 0.17 | 0.28 | 0.02 | 0.02 | 0.12 | 0.12 | 0.02 | 0.02 | 0.10 | 0.20 | 0.10 | 0.20 |
| 56 | 0.17 | 0.16 | 0.03 | 0.02 | 0.12 | 0.12 | 0.05 | 0.04 | 0.10 | 0.20 | 0.10 | 0.20 |
| 57 | 0.17 | 0.16 | 0.04 | 0.02 | 0.12 | 0.12 | 0.08 | 0.06 | 0.13 | 0.20 | 0.10 | 0.20 |
| 58 | 0.17 | 0.16 | 0.05 | 0.02 | 0.12 | 0.12 | 0.11 | 0.08 | 0.13 | 0.20 | 0.15 | 0.20 |
| 59 | 0.20 | 0.30 | 0.06 | 0.04 | 0.16 | 0.24 | 0.14 | 0.10 | 0.13 | 0.20 | 0.15 | 0.33 |
| 60 | 0.16 | 0.16 | 0.07 | 0.06 | 0.12 | 0.12 | 0.30 | 0.34 | 0.23 | 0.25 | 0.15 | 0.33 |
| 61 | 0.23 | 0.21 | 0.08 | 0.13 | 0.20 | 0.20 | 0.26 | 0.26 | 0.23 | 0.25 | 0.19 | 0.33 |
| 62 | 0.30 | 0.26 | 0.24 | 0.20 | 0.28 | 0.28 | 0.30 | 0.34 | 0.23 | 0.25 | 0.23 | 0.33 |
| 63 | 0.22 | 0.20 | 0.22 | 0.18 | 0.26 | 0.26 | 0.50 | 0.52 | 0.23 | 0.25 | 0.20 | 0.33 |
| 64 | 0.28 | 0.28 | 0.56 | 0.56 | 0.56 | 0.56 | 0.70 | 0.70 | 0.23 | 0.25 | 0.20 | 0.33 |
| 65 | 0.34 | 0.36 | 0.40 | 0.40 | 0.40 | 0.40 | 0.50 | 0.35 | 0.23 | 0.25 | 0.25 | 1.00 |
| 66 | 0.30 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 0.30 | 0.35 | 0.23 | 0.25 | 0.25 | 1.00 |
| 67 | 0.26 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 0.30 | 0.35 | 0.23 | 0.25 | 0.25 | 1.00 |
| 68 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 0.30 | 0.35 | 0.23 | 0.25 | 0.25 | 1.00 |
| 69 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 0.30 | 0.35 | 0.23 | 0.25 | 0.25 | 1.00 |
| 70 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 71 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 72 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 73 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 74 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 75 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 76 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 77 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 78 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 79 | 0.22 | 0.22 | 0.24 | 0.24 | 0.24 | 0.24 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Probability of Service Retirement (Hired on or after 5/1/2013)***

| | TRS Plans 2/3 | | | | SERS Plans 2/3 | | PERS Plans 2/3 | |
|---|---|---|---|---|---|---|---|---|
| | Service equal to 30 years | | Service greater than 30 years | | Service greater than or equal to 30 years | | Service greater than or equal to 30 years | |
| Age | | | Male | Female | Male | Female | Male | Female |
| 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 0.16 | 0.14 | 0.09 | 0.09 | 0.08 | 0.09 | 0.09 | 0.09 |
| 56 | 0.15 | 0.15 | 0.10 | 0.10 | 0.08 | 0.08 | 0.09 | 0.08 |
| 57 | 0.14 | 0.16 | 0.11 | 0.11 | 0.09 | 0.08 | 0.09 | 0.08 |
| 58 | 0.17 | 0.17 | 0.12 | 0.13 | 0.09 | 0.08 | 0.09 | 0.08 |
| 59 | 0.21 | 0.18 | 0.14 | 0.15 | 0.11 | 0.16 | 0.12 | 0.15 |
| 60 | 0.25 | 0.19 | 0.15 | 0.14 | 0.09 | 0.09 | 0.10 | 0.09 |
| 61 | 0.33 | 0.29 | 0.20 | 0.19 | 0.18 | 0.17 | 0.15 | 0.17 |
| 62 | 0.40 | 0.39 | 0.30 | 0.28 | 0.27 | 0.25 | 0.26 | 0.24 |
| 63 | 0.35 | 0.35 | 0.27 | 0.26 | 0.25 | 0.23 | 0.24 | 0.22 |
| 64 | 0.55 | 0.50 | 0.55 | 0.48 | 0.56 | 0.50 | 0.56 | 0.56 |
| 65 | 0.48 | 0.40 | 0.48 | 0.40 | 0.39 | 0.36 | 0.40 | 0.40 |
| 66 | 0.41 | 0.32 | 0.41 | 0.32 | 0.22 | 0.24 | 0.24 | 0.24 |
| 67 | 0.34 | 0.24 | 0.34 | 0.24 | 0.22 | 0.23 | 0.24 | 0.24 |
| 68 | 0.27 | 0.24 | 0.27 | 0.24 | 0.22 | 0.22 | 0.24 | 0.24 |
| 69 | 0.27 | 0.42 | 0.27 | 0.42 | 0.22 | 0.21 | 0.24 | 0.24 |
| 70 | 0.27 | 0.30 | 0.27 | 0.30 | 0.22 | 0.20 | 0.24 | 0.24 |
| 71 | 0.41 | 0.30 | 0.41 | 0.30 | 0.20 | 0.19 | 0.24 | 0.24 |
| 72 | 0.55 | 0.30 | 0.55 | 0.30 | 0.18 | 0.18 | 0.24 | 0.24 |
| 73 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 74 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 75 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 76 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 77 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 78 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 79 | 0.55 | 0.30 | 0.55 | 0.30 | 0.16 | 0.17 | 0.24 | 0.24 |
| 80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**We expect no change in retirement behavior for less than 30 years of service.*

Our mortality rates include an assumption for future mortality improvements. We took two steps to build our mortality assumptions.

First, we developed the base mortality table by starting with RP-2000, published by the Society of Actuaries, and applying age offsets for each system and plan. When age offsets are negative, it means we think people of a given age are generally healthier than others their age. In other words, we expect their mortality experience will be similar to younger people. Conversely, a positive age offset means we expect mortality experience for a given age to match that of a higher age in the general population. For instance, we expect a 50-year-old PERS male to have the same mortality rate as other 49-year-old males because we assume a negative one-year age offset.

Next, we applied mortality improvements to the RP-2000 mortality table using Scale BB. Beginning with the *2013 Actuarial Valuation Report*, we use "generational" mortality instead of projecting to a given year. Under generational mortality, a member is assumed to receive additional mortality improvements in each future year, throughout their lifetime.

As an example of generational mortality, consider a healthy PERS Plan 1 male, age 50. To project the RP-2000 mortality rates to the valuation year (2013), we use the following equation.

RP-2000 rate x (1 –Scale BB) ^ 13

For a 50-year-old male, this is 0.001995 x (1 –0.003) ^ 13 = 0.001919.

The next tables show the age offsets we used as well as the mortality rates projected to the current valuation year for each plan. Please note that this table is meant to be an example only. Under generational mortality, the mortality rate for each age will improve in each future year by the rates in the mortality improvement table.

Following these tables, the next table shows Scale BB, which was published by the Society of Actuaries.

Please see the *2007-2012 Experience Study* for more details regarding the development of these rates.

| Mortality Projected to 2013 | | | | | | |
|---|---|---|---|---|---|---|
| | PERS, SERS, and PSERS | | TRS | | LEOFF and WSPRS | |
| | Male | Female | Male | Female | Male | Female |
| Offsets | | | | | | |
| Age | -1 | -1 | -3 | -2 | -1 | 1 |
| 20 | 0.000318 | 0.000183 | 0.000289 | 0.000181 | 0.000318 | 0.000185 |
| 21 | 0.000332 | 0.000184 | 0.000304 | 0.000183 | 0.000332 | 0.000187 |
| 22 | 0.000343 | 0.000185 | 0.000318 | 0.000184 | 0.000343 | 0.000189 |
| 23 | 0.000352 | 0.000187 | 0.000332 | 0.000185 | 0.000352 | 0.000193 |
| 24 | 0.000359 | 0.000189 | 0.000343 | 0.000187 | 0.000359 | 0.000199 |
| 25 | 0.000362 | 0.000193 | 0.000352 | 0.000189 | 0.000362 | 0.000206 |
| 26 | 0.000362 | 0.000199 | 0.000359 | 0.000193 | 0.000362 | 0.000214 |
| 27 | 0.000364 | 0.000206 | 0.000362 | 0.000199 | 0.000364 | 0.000226 |
| 28 | 0.000367 | 0.000214 | 0.000362 | 0.000206 | 0.000367 | 0.000239 |
| 29 | 0.000378 | 0.000226 | 0.000364 | 0.000214 | 0.000378 | 0.000254 |
| 30 | 0.000396 | 0.000239 | 0.000367 | 0.000226 | 0.000396 | 0.000295 |
| 31 | 0.000427 | 0.000254 | 0.000378 | 0.000239 | 0.000427 | 0.000337 |
| 32 | 0.000480 | 0.000295 | 0.000396 | 0.000254 | 0.000480 | 0.000379 |
| 33 | 0.000540 | 0.000337 | 0.000427 | 0.000295 | 0.000540 | 0.000418 |
| 34 | 0.000607 | 0.000379 | 0.000480 | 0.000337 | 0.000607 | 0.000457 |
| 35 | 0.000675 | 0.000418 | 0.000540 | 0.000379 | 0.000675 | 0.000494 |
| 36 | 0.000743 | 0.000457 | 0.000607 | 0.000418 | 0.000743 | 0.000533 |
| 37 | 0.000809 | 0.000494 | 0.000675 | 0.000457 | 0.000809 | 0.000575 |
| 38 | 0.000869 | 0.000533 | 0.000743 | 0.000494 | 0.000869 | 0.000623 |
| 39 | 0.000927 | 0.000575 | 0.000809 | 0.000533 | 0.000927 | 0.000679 |
| 40 | 0.000982 | 0.000623 | 0.000869 | 0.000575 | 0.000982 | 0.000744 |
| 41 | 0.001038 | 0.000679 | 0.000927 | 0.000623 | 0.001038 | 0.000819 |
| 42 | 0.001098 | 0.000744 | 0.000982 | 0.000679 | 0.001098 | 0.000901 |
| 43 | 0.001168 | 0.000819 | 0.001038 | 0.000744 | 0.001168 | 0.000990 |
| 44 | 0.001249 | 0.000901 | 0.001098 | 0.000819 | 0.001249 | 0.001081 |
| 45 | 0.001343 | 0.000990 | 0.001168 | 0.000901 | 0.001343 | 0.001176 |
| 46 | 0.001450 | 0.001081 | 0.001249 | 0.000990 | 0.001450 | 0.001275 |
| 47 | 0.001554 | 0.001176 | 0.001343 | 0.001081 | 0.001554 | 0.001379 |
| 48 | 0.001668 | 0.001275 | 0.001450 | 0.001176 | 0.001668 | 0.001491 |
| 49 | 0.001789 | 0.001379 | 0.001554 | 0.001275 | 0.001789 | 0.001612 |
| 50 | 0.001919 | 0.001491 | 0.001668 | 0.001379 | 0.001919 | 0.001781 |
| 51 | 0.002056 | 0.001612 | 0.001789 | 0.001491 | 0.002056 | 0.001941 |
| 52 | 0.002355 | 0.001781 | 0.001919 | 0.001612 | 0.002355 | 0.002122 |
| 53 | 0.002565 | 0.001941 | 0.002056 | 0.001781 | 0.002565 | 0.002331 |
| 54 | 0.002804 | 0.002095 | 0.002355 | 0.001916 | 0.002804 | 0.002579 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**Mortality Projected to 2013**
*(Continued)*

| | PERS, SERS, and PSERS | | TRS | | LEOFF and WSPRS | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| Offsets Age | -1 | -1 | -3 | -2 | -1 | 1 |
| 55 | 0.003074 | 0.002271 | 0.002565 | 0.002068 | 0.003074 | 0.002895 |
| 56 | 0.003485 | 0.002513 | 0.002804 | 0.002242 | 0.003485 | 0.003216 |
| 57 | 0.003987 | 0.002820 | 0.003034 | 0.002480 | 0.003987 | 0.003581 |
| 58 | 0.004397 | 0.003133 | 0.003395 | 0.002784 | 0.004397 | 0.004001 |
| 59 | 0.004876 | 0.003488 | 0.003884 | 0.003092 | 0.004876 | 0.004494 |
| 60 | 0.005426 | 0.003897 | 0.004283 | 0.003443 | 0.005426 | 0.005102 |
| 61 | 0.006078 | 0.004378 | 0.004750 | 0.003846 | 0.006078 | 0.005765 |
| 62 | 0.006825 | 0.004970 | 0.005286 | 0.004321 | 0.006825 | 0.006537 |
| 63 | 0.007684 | 0.005690 | 0.005921 | 0.004970 | 0.007684 | 0.007367 |
| 64 | 0.008671 | 0.006537 | 0.006648 | 0.005690 | 0.008671 | 0.008296 |
| 65 | 0.009642 | 0.007367 | 0.007485 | 0.006537 | 0.009642 | 0.009363 |
| 66 | 0.010745 | 0.008296 | 0.008446 | 0.007367 | 0.010745 | 0.010396 |
| 67 | 0.011996 | 0.009363 | 0.009391 | 0.008296 | 0.011996 | 0.011492 |
| 68 | 0.013208 | 0.010396 | 0.010465 | 0.009363 | 0.013208 | 0.012702 |
| 69 | 0.014683 | 0.011492 | 0.011839 | 0.010396 | 0.014683 | 0.014310 |
| 70 | 0.016270 | 0.012702 | 0.013208 | 0.011492 | 0.016270 | 0.015880 |
| 71 | 0.018245 | 0.014310 | 0.014683 | 0.012702 | 0.018245 | 0.017663 |
| 72 | 0.020187 | 0.015880 | 0.016270 | 0.014310 | 0.020187 | 0.019634 |
| 73 | 0.022415 | 0.017663 | 0.018245 | 0.015880 | 0.022415 | 0.021760 |
| 74 | 0.024967 | 0.019634 | 0.020187 | 0.017663 | 0.024967 | 0.024024 |
| 75 | 0.027853 | 0.021760 | 0.022415 | 0.019634 | 0.027853 | 0.026468 |
| 76 | 0.031085 | 0.024024 | 0.024967 | 0.021760 | 0.031085 | 0.029151 |
| 77 | 0.034647 | 0.026468 | 0.027853 | 0.024024 | 0.034647 | 0.032134 |
| 78 | 0.038539 | 0.029151 | 0.031085 | 0.026468 | 0.038539 | 0.035477 |
| 79 | 0.042825 | 0.032134 | 0.034647 | 0.029151 | 0.042825 | 0.039215 |
| 80 | 0.047594 | 0.035477 | 0.038539 | 0.032134 | 0.047594 | 0.043404 |
| 81 | 0.052886 | 0.039215 | 0.042825 | 0.035477 | 0.052886 | 0.048117 |
| 82 | 0.059190 | 0.043404 | 0.047594 | 0.039215 | 0.059190 | 0.053427 |
| 83 | 0.066129 | 0.048117 | 0.052886 | 0.043404 | 0.066129 | 0.059420 |
| 84 | 0.073714 | 0.053427 | 0.059190 | 0.048117 | 0.073714 | 0.066197 |
| 85 | 0.081980 | 0.059420 | 0.066129 | 0.053427 | 0.081980 | 0.073830 |
| 86 | 0.091000 | 0.066197 | 0.073714 | 0.059420 | 0.091000 | 0.082344 |
| 87 | 0.102232 | 0.073830 | 0.083069 | 0.066197 | 0.102232 | 0.091717 |
| 88 | 0.114762 | 0.082344 | 0.093432 | 0.073830 | 0.114762 | 0.101847 |
| 89 | 0.128717 | 0.091717 | 0.104961 | 0.082344 | 0.128717 | 0.112555 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**Mortality Projected to 2013**
*(Continued)*

| | PERS, SERS, and PSERS | | TRS | | LEOFF and WSPRS | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| Offsets Age | -1 | -1 | -3 | -2 | -1 | 1 |
| 90 | 0.144131 | 0.103195 | 0.117822 | 0.092932 | 0.144131 | 0.125237 |
| 91 | 0.160944 | 0.115554 | 0.132146 | 0.104560 | 0.160944 | 0.138313 |
| 92 | 0.177617 | 0.128569 | 0.147966 | 0.117080 | 0.177617 | 0.151534 |
| 93 | 0.195128 | 0.141990 | 0.165223 | 0.130266 | 0.195128 | 0.164674 |
| 94 | 0.213269 | 0.155559 | 0.182334 | 0.143862 | 0.213269 | 0.177533 |
| 95 | 0.231828 | 0.169043 | 0.200305 | 0.157607 | 0.231828 | 0.189924 |
| 96 | 0.250616 | 0.182238 | 0.218921 | 0.171267 | 0.250616 | 0.201662 |
| 97 | 0.269491 | 0.194952 | 0.237965 | 0.184634 | 0.269491 | 0.212577 |
| 98 | 0.284628 | 0.204312 | 0.253910 | 0.194952 | 0.284628 | 0.219639 |
| 99 | 0.303218 | 0.215369 | 0.273030 | 0.206995 | 0.303218 | 0.228371 |
| 100 | 0.317558 | 0.222524 | 0.288366 | 0.215369 | 0.317558 | 0.235455 |
| 101 | 0.335704 | 0.231366 | 0.307196 | 0.225443 | 0.335704 | 0.247960 |
| 102 | 0.349415 | 0.238544 | 0.321724 | 0.231366 | 0.349415 | 0.259209 |
| 103 | 0.366882 | 0.251209 | 0.340104 | 0.241670 | 0.366882 | 0.275449 |
| 104 | 0.378090 | 0.262606 | 0.353994 | 0.251209 | 0.378090 | 0.289328 |
| 105 | 0.392003 | 0.279055 | 0.371685 | 0.266044 | 0.392003 | 0.307811 |
| 106 | 0.397886 | 0.293116 | 0.383040 | 0.279055 | 0.397886 | 0.322725 |
| 107 | 0.400000 | 0.307811 | 0.392003 | 0.293116 | 0.400000 | 0.337441 |
| 108 | 0.400000 | 0.322725 | 0.397886 | 0.307811 | 0.400000 | 0.351544 |
| 109 | 0.400000 | 0.337441 | 0.400000 | 0.322725 | 0.400000 | 0.364617 |
| 110 | 0.400000 | 0.351544 | 0.400000 | 0.337441 | 0.400000 | 0.376246 |
| 111 | 0.400000 | 0.364617 | 0.400000 | 0.351544 | 0.400000 | 0.386015 |
| 112 | 0.400000 | 0.376246 | 0.400000 | 0.364617 | 0.400000 | 0.393507 |
| 113 | 0.400000 | 0.386015 | 0.400000 | 0.376246 | 0.400000 | 0.398308 |
| 114 | 0.400000 | 0.393507 | 0.400000 | 0.386015 | 0.400000 | 0.400000 |
| 115 | 0.400000 | 0.398308 | 0.400000 | 0.393507 | 0.400000 | 0.400000 |
| 116 | 0.400000 | 0.400000 | 0.400000 | 0.398308 | 0.400000 | 0.400000 |
| 117 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 0.400000 |
| 118 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 0.400000 |
| 119 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 0.400000 | 1.000000 |
| 120 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**100% Scale BB Mortality Improvement**

| Age | Male | Female | Age | Male | Female | Age | Male | Female |
|---|---|---|---|---|---|---|---|---|
| 20 | 0.0030 | 0.0030 | 50 | 0.0030 | 0.0030 | 80 | 0.0150 | 0.0120 |
| 21 | 0.0030 | 0.0030 | 51 | 0.0030 | 0.0030 | 81 | 0.0150 | 0.0120 |
| 22 | 0.0030 | 0.0030 | 52 | 0.0030 | 0.0030 | 82 | 0.0150 | 0.0120 |
| 23 | 0.0030 | 0.0030 | 53 | 0.0030 | 0.0030 | 83 | 0.0150 | 0.0120 |
| 24 | 0.0030 | 0.0030 | 54 | 0.0030 | 0.0040 | 84 | 0.0150 | 0.0120 |
| 25 | 0.0030 | 0.0030 | 55 | 0.0030 | 0.0050 | 85 | 0.0150 | 0.0120 |
| 26 | 0.0030 | 0.0030 | 56 | 0.0030 | 0.0060 | 86 | 0.0150 | 0.0120 |
| 27 | 0.0030 | 0.0030 | 57 | 0.0040 | 0.0070 | 87 | 0.0140 | 0.0120 |
| 28 | 0.0030 | 0.0030 | 58 | 0.0050 | 0.0080 | 88 | 0.0130 | 0.0120 |
| 29 | 0.0030 | 0.0030 | 59 | 0.0060 | 0.0090 | 89 | 0.0120 | 0.0120 |
| 30 | 0.0030 | 0.0030 | 60 | 0.0070 | 0.0100 | 90 | 0.0110 | 0.0110 |
| 31 | 0.0030 | 0.0030 | 61 | 0.0080 | 0.0110 | 91 | 0.0100 | 0.0100 |
| 32 | 0.0030 | 0.0030 | 62 | 0.0090 | 0.0120 | 92 | 0.0090 | 0.0090 |
| 33 | 0.0030 | 0.0030 | 63 | 0.0100 | 0.0120 | 93 | 0.0080 | 0.0080 |
| 34 | 0.0030 | 0.0030 | 64 | 0.0110 | 0.0120 | 94 | 0.0070 | 0.0070 |
| 35 | 0.0030 | 0.0030 | 65 | 0.0120 | 0.0120 | 95 | 0.0060 | 0.0060 |
| 36 | 0.0030 | 0.0030 | 66 | 0.0130 | 0.0120 | 96 | 0.0050 | 0.0050 |
| 37 | 0.0030 | 0.0030 | 67 | 0.0140 | 0.0120 | 97 | 0.0040 | 0.0040 |
| 38 | 0.0030 | 0.0030 | 68 | 0.0150 | 0.0120 | 98 | 0.0040 | 0.0040 |
| 39 | 0.0030 | 0.0030 | 69 | 0.0150 | 0.0120 | 99 | 0.0030 | 0.0030 |
| 40 | 0.0030 | 0.0030 | 70 | 0.0150 | 0.0120 | 100 | 0.0030 | 0.0030 |
| 41 | 0.0030 | 0.0030 | 71 | 0.0150 | 0.0120 | 101 | 0.0020 | 0.0020 |
| 42 | 0.0030 | 0.0030 | 72 | 0.0150 | 0.0120 | 102 | 0.0020 | 0.0020 |
| 43 | 0.0030 | 0.0030 | 73 | 0.0150 | 0.0120 | 103 | 0.0010 | 0.0010 |
| 44 | 0.0030 | 0.0030 | 74 | 0.0150 | 0.0120 | 104 | 0.0010 | 0.0010 |
| 45 | 0.0030 | 0.0030 | 75 | 0.0150 | 0.0120 | 105 | 0.0000 | 0.0000 |
| 46 | 0.0030 | 0.0030 | 76 | 0.0150 | 0.0120 | 106 | 0.0000 | 0.0000 |
| 47 | 0.0030 | 0.0030 | 77 | 0.0150 | 0.0120 | 107 | 0.0000 | 0.0000 |
| 48 | 0.0030 | 0.0030 | 78 | 0.0150 | 0.0120 | 108 | 0.0000 | 0.0000 |
| 49 | 0.0030 | 0.0030 | 79 | 0.0150 | 0.0120 | 109 | 0.0000 | 0.0000 |
| | | | | | | 110 | 0.0000 | 0.0000 |

**Disabled Mortality Projected to 2013**

| | All Systems Except LEOFF 1 | | LEOFF 1* | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Offsets | | | | |
| Age | 0 | 0 | 2 | 2 |
| 20 | 0.021706 | 0.007165 | 0.000352 | 0.000187 |
| 21 | 0.021706 | 0.007165 | 0.000359 | 0.000189 |
| 22 | 0.021706 | 0.007165 | 0.000362 | 0.000193 |
| 23 | 0.021706 | 0.007165 | 0.000362 | 0.000199 |
| 24 | 0.021706 | 0.007165 | 0.000364 | 0.000206 |
| 25 | 0.021706 | 0.007165 | 0.000367 | 0.000214 |
| 26 | 0.021706 | 0.007165 | 0.000378 | 0.000226 |
| 27 | 0.021706 | 0.007165 | 0.000396 | 0.000239 |
| 28 | 0.021706 | 0.007165 | 0.000427 | 0.000254 |
| 29 | 0.021706 | 0.007165 | 0.000480 | 0.000295 |
| 30 | 0.021706 | 0.007165 | 0.000540 | 0.000337 |
| 31 | 0.021706 | 0.007165 | 0.000607 | 0.000379 |
| 32 | 0.021706 | 0.007165 | 0.000675 | 0.000418 |
| 33 | 0.021706 | 0.007165 | 0.000743 | 0.000457 |
| 34 | 0.021706 | 0.007165 | 0.000809 | 0.000494 |
| 35 | 0.021706 | 0.007165 | 0.000869 | 0.000533 |
| 36 | 0.021706 | 0.007165 | 0.000927 | 0.000575 |
| 37 | 0.021706 | 0.007165 | 0.000982 | 0.000623 |
| 38 | 0.021706 | 0.007165 | 0.001038 | 0.000679 |
| 39 | 0.021706 | 0.007165 | 0.001098 | 0.000744 |
| 40 | 0.021706 | 0.007165 | 0.001168 | 0.000819 |
| 41 | 0.021706 | 0.007165 | 0.001249 | 0.000901 |
| 42 | 0.021706 | 0.007165 | 0.001343 | 0.000990 |
| 43 | 0.021706 | 0.007165 | 0.001450 | 0.001081 |
| 44 | 0.021706 | 0.007165 | 0.001554 | 0.001176 |
| 45 | 0.021706 | 0.007165 | 0.001668 | 0.001275 |
| 46 | 0.022934 | 0.007871 | 0.001789 | 0.001379 |
| 47 | 0.024162 | 0.008616 | 0.001919 | 0.001491 |
| 48 | 0.025393 | 0.009401 | 0.002056 | 0.001612 |
| 49 | 0.026626 | 0.010227 | 0.002355 | 0.001781 |
| 50 | 0.027865 | 0.011093 | 0.002565 | 0.001941 |
| 51 | 0.029109 | 0.011999 | 0.002804 | 0.002122 |
| 52 | 0.030354 | 0.012941 | 0.003074 | 0.002331 |
| 53 | 0.031600 | 0.013911 | 0.003485 | 0.002613 |
| 54 | 0.032844 | 0.014710 | 0.004039 | 0.002933 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**LEOFF 1 uses RP-2000 Healthy mortality table as its base.*

| Disabled Mortality Projected to 2013 (Continued) | | | | |
|---|---|---|---|---|
| | All Systems Except LEOFF 1 | | LEOFF 1* | |
| | Male | Female | Male | Female |
| Offsets Age | 0 | 0 | 2 | 2 |
| 55 | 0.034084 | 0.015500 | 0.004513 | 0.003259 |
| 56 | 0.035325 | 0.016274 | 0.005071 | 0.003628 |
| 57 | 0.036095 | 0.017026 | 0.005643 | 0.004053 |
| 58 | 0.036853 | 0.017756 | 0.006321 | 0.004554 |
| 59 | 0.037608 | 0.018465 | 0.007098 | 0.005169 |
| 60 | 0.038373 | 0.019164 | 0.007993 | 0.005842 |
| 61 | 0.039163 | 0.019864 | 0.009019 | 0.006624 |
| 62 | 0.039993 | 0.020582 | 0.010029 | 0.007367 |
| 63 | 0.040878 | 0.021619 | 0.011177 | 0.008296 |
| 64 | 0.041837 | 0.022736 | 0.012479 | 0.009363 |
| 65 | 0.042886 | 0.023955 | 0.013740 | 0.010396 |
| 66 | 0.044046 | 0.025296 | 0.015076 | 0.011492 |
| 67 | 0.045331 | 0.026775 | 0.016486 | 0.012702 |
| 68 | 0.046758 | 0.028407 | 0.018245 | 0.014310 |
| 69 | 0.048979 | 0.030203 | 0.020187 | 0.015880 |
| 70 | 0.051419 | 0.032169 | 0.022415 | 0.017663 |
| 71 | 0.054096 | 0.034310 | 0.024967 | 0.019634 |
| 72 | 0.057025 | 0.036627 | 0.027853 | 0.021760 |
| 73 | 0.060218 | 0.039121 | 0.031085 | 0.024024 |
| 74 | 0.063685 | 0.041793 | 0.034647 | 0.026468 |
| 75 | 0.067428 | 0.044644 | 0.038539 | 0.029151 |
| 76 | 0.071441 | 0.047676 | 0.042825 | 0.032134 |
| 77 | 0.075711 | 0.050896 | 0.047594 | 0.035477 |
| 78 | 0.080223 | 0.054315 | 0.052886 | 0.039215 |
| 79 | 0.084949 | 0.057946 | 0.059190 | 0.043404 |
| 80 | 0.089862 | 0.061809 | 0.066129 | 0.048117 |
| 81 | 0.094933 | 0.065931 | 0.073714 | 0.053427 |
| 82 | 0.100137 | 0.070344 | 0.081980 | 0.059420 |
| 83 | 0.105449 | 0.075080 | 0.091000 | 0.066197 |
| 84 | 0.110855 | 0.080171 | 0.100892 | 0.073830 |
| 85 | 0.116344 | 0.085649 | 0.111776 | 0.082344 |
| 86 | 0.121907 | 0.091543 | 0.123728 | 0.091717 |
| 87 | 0.129238 | 0.097879 | 0.138550 | 0.101847 |
| 88 | 0.136816 | 0.104676 | 0.154718 | 0.112555 |
| 89 | 0.144652 | 0.111949 | 0.170753 | 0.123601 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**LEOFF 1 uses RP-2000 Healthy mortality table as its base.*

| Disabled Mortality Projected to 2013 (Continued) | | | | |
|---|---|---|---|---|
| | All Systems Except LEOFF 1 | | LEOFF 1* | |
| | Male | Female | Male | Female |
| Offsets Age | 0 | 0 | 2 | 2 |
| 90 | 0.158844 | 0.121292 | 0.187595 | 0.136508 |
| 91 | 0.175301 | 0.131363 | 0.205043 | 0.149559 |
| 92 | 0.192587 | 0.142191 | 0.222895 | 0.162529 |
| 93 | 0.210494 | 0.153534 | 0.240969 | 0.175223 |
| 94 | 0.228814 | 0.166845 | 0.259127 | 0.187455 |
| 95 | 0.247362 | 0.179872 | 0.277287 | 0.199043 |
| 96 | 0.265995 | 0.192423 | 0.295405 | 0.209819 |
| 97 | 0.284628 | 0.204312 | 0.313442 | 0.219639 |
| 98 | 0.299288 | 0.212577 | 0.327063 | 0.225411 |
| 99 | 0.317558 | 0.222524 | 0.344891 | 0.235455 |
| 100 | 0.331358 | 0.228371 | 0.357447 | 0.244749 |
| 101 | 0.349415 | 0.238544 | 0.373200 | 0.259209 |
| 102 | 0.362136 | 0.247960 | 0.381932 | 0.271886 |
| 103 | 0.378090 | 0.262606 | 0.392744 | 0.289328 |
| 104 | 0.386937 | 0.275449 | 0.394831 | 0.303833 |
| 105 | 0.397886 | 0.293116 | 0.400000 | 0.322725 |
| 106 | 0.400000 | 0.307811 | 0.400000 | 0.337441 |
| 107 | 0.400000 | 0.322725 | 0.400000 | 0.351544 |
| 108 | 0.400000 | 0.337441 | 0.400000 | 0.364617 |
| 109 | 0.400000 | 0.351544 | 0.400000 | 0.376246 |
| 110 | 0.400000 | 0.364617 | 0.400000 | 0.386015 |
| 111 | 0.400000 | 0.376246 | 0.400000 | 0.393507 |
| 112 | 0.400000 | 0.386015 | 0.400000 | 0.398308 |
| 113 | 0.400000 | 0.393507 | 0.400000 | 0.400000 |
| 114 | 0.400000 | 0.398308 | 0.400000 | 0.400000 |
| 115 | 0.400000 | 0.400000 | 0.400000 | 0.400000 |
| 116 | 0.400000 | 0.400000 | 0.400000 | 0.400000 |
| 117 | 0.400000 | 0.400000 | 0.400000 | 0.400000 |
| 118 | 0.400000 | 0.400000 | 1.000000 | 1.000000 |
| 119 | 0.400000 | 0.400000 | 1.000000 | 1.000000 |
| 120 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

*Improvements in mortality are projected to the valuation year specified based on 100% of Scale BB.*

**LEOFF 1 uses RP-2000 Healthy mortality table as its base.*

| Probability of Disablement | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PERS* | | | | TRS | | | |
| | Plan 1 | | Plan 2/3 | | Plan 1 | | Plan 2/3 | |
| Age | Male | Female | Male | Female | Male | Female | Male | Female |
| 20 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 21 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 22 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 23 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 24 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 25 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 26 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 27 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 28 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 29 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0002 | 0.0002 | 0.0000 | 0.0000 |
| 30 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0000 | 0.0000 |
| 31 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0000 |
| 32 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0001 |
| 33 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.0001 | 0.0001 |
| 34 | 0.0000 | 0.0000 | 0.0001 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0001 |
| 35 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0001 |
| 36 | 0.0004 | 0.0004 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0001 |
| 37 | 0.0004 | 0.0004 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0001 | 0.0001 |
| 38 | 0.0005 | 0.0005 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0001 | 0.0001 |
| 39 | 0.0006 | 0.0006 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0001 | 0.0001 |
| 40 | 0.0008 | 0.0007 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0001 | 0.0001 |
| 41 | 0.0009 | 0.0008 | 0.0003 | 0.0003 | 0.0005 | 0.0005 | 0.0001 | 0.0001 |
| 42 | 0.0010 | 0.0013 | 0.0003 | 0.0003 | 0.0006 | 0.0006 | 0.0002 | 0.0001 |
| 43 | 0.0011 | 0.0013 | 0.0003 | 0.0003 | 0.0007 | 0.0007 | 0.0002 | 0.0001 |
| 44 | 0.0013 | 0.0014 | 0.0004 | 0.0004 | 0.0008 | 0.0008 | 0.0002 | 0.0002 |
| 45 | 0.0015 | 0.0014 | 0.0005 | 0.0005 | 0.0009 | 0.0010 | 0.0002 | 0.0002 |
| 46 | 0.0016 | 0.0015 | 0.0005 | 0.0005 | 0.0011 | 0.0011 | 0.0003 | 0.0002 |
| 47 | 0.0018 | 0.0015 | 0.0006 | 0.0006 | 0.0012 | 0.0012 | 0.0003 | 0.0003 |
| 48 | 0.0021 | 0.0020 | 0.0007 | 0.0007 | 0.0013 | 0.0013 | 0.0003 | 0.0003 |
| 49 | 0.0023 | 0.0025 | 0.0008 | 0.0009 | 0.0015 | 0.0015 | 0.0004 | 0.0003 |

*Rates have been rounded for display purposes.*
**10% of all PERS Plan 1 disabilities are assumed to be duty related.*

| Probability of Disablement *(Continued)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PERS* | | | | TRS | | | |
| | Plan 1 | | Plan 2/3 | | Plan 1 | | Plan 2/3 | |
| Age | Male | Female | Male | Female | Male | Female | Male | Female |
| 50 | 0.0025 | 0.0030 | 0.0009 | 0.0010 | 0.0016 | 0.0017 | 0.0004 | 0.0003 |
| 51 | 0.0028 | 0.0035 | 0.0010 | 0.0011 | 0.0019 | 0.0019 | 0.0005 | 0.0004 |
| 52 | 0.0030 | 0.0040 | 0.0011 | 0.0013 | 0.0022 | 0.0022 | 0.0006 | 0.0005 |
| 53 | 0.0048 | 0.0048 | 0.0016 | 0.0018 | 0.0025 | 0.0025 | 0.0006 | 0.0005 |
| 54 | 0.0065 | 0.0056 | 0.0021 | 0.0023 | 0.0029 | 0.0029 | 0.0008 | 0.0006 |
| 55 | 0.0082 | 0.0064 | 0.0026 | 0.0028 | 0.0033 | 0.0034 | 0.0011 | 0.0008 |
| 56 | 0.0100 | 0.0072 | 0.0034 | 0.0033 | 0.0036 | 0.0036 | 0.0013 | 0.0009 |
| 57 | 0.0117 | 0.0080 | 0.0042 | 0.0038 | 0.0038 | 0.0039 | 0.0015 | 0.0011 |
| 58 | 0.0117 | 0.0080 | 0.0052 | 0.0051 | 0.0041 | 0.0042 | 0.0018 | 0.0013 |
| 59 | 0.0096 | 0.0054 | 0.0064 | 0.0064 | 0.0044 | 0.0044 | 0.0021 | 0.0016 |
| 60 | 0.0075 | 0.0035 | 0.0079 | 0.0077 | 0.0047 | 0.0048 | 0.0025 | 0.0019 |
| 61 | 0.0059 | 0.0022 | 0.0097 | 0.0090 | 0.0052 | 0.0053 | 0.0029 | 0.0023 |
| 62 | 0.0046 | 0.0014 | 0.0120 | 0.0103 | 0.0058 | 0.0059 | 0.0034 | 0.0027 |
| 63 | 0.0036 | 0.0009 | 0.0102 | 0.0092 | 0.0065 | 0.0066 | 0.0041 | 0.0032 |
| 64 | 0.0028 | 0.0006 | 0.0083 | 0.0069 | 0.0072 | 0.0073 | 0.0048 | 0.0039 |
| 65 | 0.0022 | 0.0004 | 0.0061 | 0.0053 | 0.0056 | 0.0057 | 0.0024 | 0.0016 |
| 66 | 0.0017 | 0.0002 | 0.0045 | 0.0040 | 0.0043 | 0.0043 | 0.0016 | 0.0011 |
| 67 | 0.0013 | 0.0002 | 0.0034 | 0.0030 | 0.0033 | 0.0033 | 0.0011 | 0.0008 |
| 68 | 0.0011 | 0.0001 | 0.0025 | 0.0023 | 0.0025 | 0.0025 | 0.0007 | 0.0006 |
| 69 | 0.0008 | 0.0001 | 0.0018 | 0.0017 | 0.0019 | 0.0019 | 0.0005 | 0.0004 |
| 70 | 0.0006 | 0.0000 | 0.0014 | 0.0013 | 0.0015 | 0.0015 | 0.0003 | 0.0003 |
| 71 | 0.0005 | 0.0000 | 0.0010 | 0.0010 | 0.0011 | 0.0011 | 0.0002 | 0.0002 |
| 72 | 0.0004 | 0.0000 | 0.0007 | 0.0008 | 0.0009 | 0.0009 | 0.0002 | 0.0001 |
| 73 | 0.0003 | 0.0000 | 0.0005 | 0.0006 | 0.0007 | 0.0007 | 0.0001 | 0.0001 |
| 74 | 0.0002 | 0.0000 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0001 | 0.0001 |
| 75 | 0.0002 | 0.0000 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0000 | 0.0001 |
| 76 | 0.0001 | 0.0000 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0000 | 0.0000 |
| 77 | 0.0001 | 0.0000 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 |
| 78 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0000 | 0.0000 |
| 79 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 |
| 80 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

*Rates have been rounded for display purposes.*
**10% of all PERS Plan 1 disabilities are assumed to be duty related.*

**Probability of Disablement**

| | SERS Plan 2/3 | | PSERS Plan 2 | | | | LEOFF* | | WSPRS* |
|---|---|---|---|---|---|---|---|---|---|
| | | | Service less than 10 years | | Service greater than or equal to 10 years | | Plan 1 | Plan 2 | 1/2 |
| Age | Male | Female | Male | Female | Male | Female | Both | Both | Both |
| 20 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 |
| 21 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 |
| 22 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 |
| 23 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0010 | 0.0001 | 0.0001 |
| 24 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0010 | 0.0002 | 0.0001 |
| 25 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0010 | 0.0002 | 0.0001 |
| 26 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0024 | 0.0002 | 0.0001 |
| 27 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0038 | 0.0003 | 0.0001 |
| 28 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0052 | 0.0003 | 0.0001 |
| 29 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0066 | 0.0004 | 0.0002 |
| 30 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0080 | 0.0005 | 0.0002 |
| 31 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0094 | 0.0005 | 0.0002 |
| 32 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0107 | 0.0006 | 0.0002 |
| 33 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0121 | 0.0006 | 0.0002 |
| 34 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0135 | 0.0007 | 0.0003 |
| 35 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0149 | 0.0008 | 0.0003 |
| 36 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0163 | 0.0009 | 0.0003 |
| 37 | 0.0001 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0190 | 0.0011 | 0.0004 |
| 38 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0205 | 0.0012 | 0.0004 |
| 39 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0220 | 0.0013 | 0.0005 |
| 40 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0235 | 0.0014 | 0.0006 |
| 41 | 0.0003 | 0.0001 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0249 | 0.0014 | 0.0006 |
| 42 | 0.0003 | 0.0001 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0264 | 0.0015 | 0.0007 |
| 43 | 0.0004 | 0.0001 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0279 | 0.0016 | 0.0008 |
| 44 | 0.0005 | 0.0002 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0360 | 0.0017 | 0.0009 |
| 45 | 0.0005 | 0.0002 | 0.0005 | 0.0005 | 0.0006 | 0.0006 | 0.0400 | 0.0018 | 0.0010 |
| 46 | 0.0006 | 0.0003 | 0.0005 | 0.0005 | 0.0007 | 0.0007 | 0.0468 | 0.0020 | 0.0011 |
| 47 | 0.0007 | 0.0003 | 0.0006 | 0.0006 | 0.0008 | 0.0008 | 0.0532 | 0.0023 | 0.0013 |
| 48 | 0.0009 | 0.0004 | 0.0007 | 0.0007 | 0.0009 | 0.0009 | 0.0592 | 0.0026 | 0.0014 |
| 49 | 0.0010 | 0.0005 | 0.0008 | 0.0009 | 0.0010 | 0.0011 | 0.0648 | 0.0029 | 0.0016 |

*Rates have been rounded for display purposes.*

**LEOFF and WSPRS disability retirements are assumed to continue after service retirement eligibility, except for LEOFF 1 members with more than 30 years of service.*

**Probability of Disablement**

*(Continued)*

| | SERS Plan 2/3 | | PSERS Plan 2 | | | | LEOFF* | | WSPRS* |
|---|---|---|---|---|---|---|---|---|---|
| | | | Service less than 10 years | | Service greater than or equal to 10 years | | Plan 1 | Plan 2 | 1/2 |
| Age | Male | Female | Male | Female | Male | Female | Both | Both | Both |
| 50 | 0.0012 | 0.0006 | 0.0009 | 0.0010 | 0.0012 | 0.0013 | 0.0700 | 0.0032 | 0.0018 |
| 51 | 0.0014 | 0.0008 | 0.0010 | 0.0011 | 0.0013 | 0.0015 | 0.0748 | 0.0036 | 0.0020 |
| 52 | 0.0017 | 0.0009 | 0.0011 | 0.0013 | 0.0015 | 0.0016 | 0.0792 | 0.0040 | 0.0023 |
| 53 | 0.0020 | 0.0011 | 0.0016 | 0.0018 | 0.0021 | 0.0023 | 0.0832 | 0.0045 | 0.0026 |
| 54 | 0.0024 | 0.0014 | 0.0021 | 0.0023 | 0.0028 | 0.0029 | 0.0868 | 0.0050 | 0.0029 |
| 55 | 0.0028 | 0.0017 | 0.0026 | 0.0028 | 0.0034 | 0.0036 | 0.0900 | 0.0055 | 0.0032 |
| 56 | 0.0033 | 0.0021 | 0.0034 | 0.0033 | 0.0044 | 0.0043 | 0.0928 | 0.0062 | 0.0023 |
| 57 | 0.0039 | 0.0027 | 0.0042 | 0.0038 | 0.0055 | 0.0049 | 0.0952 | 0.0069 | 0.0016 |
| 58 | 0.0046 | 0.0033 | 0.0052 | 0.0051 | 0.0068 | 0.0067 | 0.0972 | 0.0076 | 0.0011 |
| 59 | 0.0054 | 0.0040 | 0.0064 | 0.0064 | 0.0084 | 0.0084 | 0.0988 | 0.0085 | 0.0008 |
| 60 | 0.0064 | 0.0050 | 0.0079 | 0.0077 | 0.0000 | 0.0000 | 0.1000 | 0.0095 | 0.0006 |
| 61 | 0.0076 | 0.0061 | 0.0097 | 0.0090 | 0.0000 | 0.0000 | 0.1008 | 0.0105 | 0.0004 |
| 62 | 0.0089 | 0.0067 | 0.0120 | 0.0103 | 0.0000 | 0.0000 | 0.1012 | 0.0117 | 0.0003 |
| 63 | 0.0110 | 0.0057 | 0.0102 | 0.0092 | 0.0000 | 0.0000 | 0.1012 | 0.0131 | 0.0002 |
| 64 | 0.0081 | 0.0049 | 0.0083 | 0.0069 | 0.0000 | 0.0000 | 0.1008 | 0.0145 | 0.0001 |
| 65 | 0.0059 | 0.0041 | 0.0061 | 0.0053 | 0.0000 | 0.0000 | 0.1000 | 0.0162 | 0.0000 |
| 66 | 0.0044 | 0.0035 | 0.0045 | 0.0040 | 0.0000 | 0.0000 | 0.0756 | 0.0026 | 0.0000 |
| 67 | 0.0032 | 0.0030 | 0.0034 | 0.0030 | 0.0000 | 0.0000 | 0.0544 | 0.0004 | 0.0000 |
| 68 | 0.0024 | 0.0025 | 0.0025 | 0.0023 | 0.0000 | 0.0000 | 0.0364 | 0.0001 | 0.0000 |
| 69 | 0.0017 | 0.0021 | 0.0018 | 0.0017 | 0.0000 | 0.0000 | 0.0216 | 0.0000 | 0.0000 |
| 70 | 0.0013 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 71 | 0.0009 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 72 | 0.0007 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 73 | 0.0005 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 74 | 0.0004 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 75 | 0.0003 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 76 | 0.0002 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 77 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 78 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 79 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 80 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

*Rates have been rounded for display purposes.*

**LEOFF and WSPRS disability retirements are assumed to continue after service retirement eligibility, except for LEOFF 1 members with more than 30 years of service.*

| Probability of Termination | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PERS | | TRS | | SERS | | PSERS | | LEOFF | WSPRS |
| Service Years | Male | Female | Male | Female | Male | Female | Male | Female | Male & Female | Male & Female |
| 0 | 0.2624 | 0.2624 | 0.1110 | 0.1113 | 0.2448 | 0.1990 | 0.2624 | 0.2624 | 0.1070 | 0.0423 |
| 1 | 0.1545 | 0.1677 | 0.0903 | 0.0946 | 0.1588 | 0.1313 | 0.1545 | 0.1677 | 0.0481 | 0.0200 |
| 2 | 0.1007 | 0.1170 | 0.0598 | 0.0717 | 0.1169 | 0.1029 | 0.1007 | 0.1170 | 0.0245 | 0.0200 |
| 3 | 0.0752 | 0.0929 | 0.0451 | 0.0613 | 0.0995 | 0.0786 | 0.0752 | 0.0929 | 0.0194 | 0.0200 |
| 4 | 0.0631 | 0.0760 | 0.0414 | 0.0531 | 0.0811 | 0.0676 | 0.0631 | 0.0760 | 0.0187 | 0.0200 |
| 5 | 0.0544 | 0.0665 | 0.0368 | 0.0471 | 0.0664 | 0.0624 | 0.0544 | 0.0665 | 0.0181 | 0.0200 |
| 6 | 0.0449 | 0.0579 | 0.0295 | 0.0409 | 0.0608 | 0.0556 | 0.0449 | 0.0579 | 0.0174 | 0.0190 |
| 7 | 0.0418 | 0.0533 | 0.0272 | 0.0367 | 0.0556 | 0.0526 | 0.0418 | 0.0533 | 0.0168 | 0.0170 |
| 8 | 0.0389 | 0.0491 | 0.0251 | 0.0330 | 0.0509 | 0.0497 | 0.0389 | 0.0491 | 0.0161 | 0.0160 |
| 9 | 0.0362 | 0.0452 | 0.0231 | 0.0296 | 0.0465 | 0.0475 | 0.0362 | 0.0452 | 0.0155 | 0.0151 |
| 10 | 0.0337 | 0.0417 | 0.0213 | 0.0266 | 0.0426 | 0.0457 | 0.0337 | 0.0417 | 0.0148 | 0.0134 |
| 11 | 0.0314 | 0.0384 | 0.0197 | 0.0239 | 0.0389 | 0.0448 | 0.0314 | 0.0384 | 0.0142 | 0.0120 |
| 12 | 0.0292 | 0.0354 | 0.0182 | 0.0214 | 0.0356 | 0.0442 | 0.0292 | 0.0354 | 0.0135 | 0.0108 |
| 13 | 0.0272 | 0.0326 | 0.0167 | 0.0193 | 0.0326 | 0.0440 | 0.0272 | 0.0326 | 0.0129 | 0.0097 |
| 14 | 0.0253 | 0.0300 | 0.0154 | 0.0173 | 0.0298 | 0.0426 | 0.0253 | 0.0300 | 0.0122 | 0.0087 |
| 15 | 0.0236 | 0.0277 | 0.0142 | 0.0160 | 0.0273 | 0.0427 | 0.0236 | 0.0277 | 0.0116 | 0.0078 |
| 16 | 0.0220 | 0.0255 | 0.0131 | 0.0155 | 0.0250 | 0.0392 | 0.0220 | 0.0255 | 0.0109 | 0.0070 |
| 17 | 0.0204 | 0.0235 | 0.0121 | 0.0150 | 0.0245 | 0.0364 | 0.0204 | 0.0235 | 0.0103 | 0.0063 |
| 18 | 0.0190 | 0.0216 | 0.0115 | 0.0145 | 0.0240 | 0.0346 | 0.0190 | 0.0216 | 0.0096 | 0.0056 |
| 19 | 0.0177 | 0.0199 | 0.0113 | 0.0140 | 0.0235 | 0.0322 | 0.0177 | 0.0199 | 0.0090 | 0.0050 |
| 20 | 0.0153 | 0.0180 | 0.0100 | 0.0130 | 0.0230 | 0.0300 | 0.0153 | 0.0180 | 0.0083 | 0.0044 |
| 21 | 0.0132 | 0.0158 | 0.0095 | 0.0126 | 0.0225 | 0.0280 | 0.0132 | 0.0158 | 0.0077 | 0.0038 |
| 22 | 0.0115 | 0.0139 | 0.0093 | 0.0118 | 0.0220 | 0.0270 | 0.0115 | 0.0139 | 0.0070 | 0.0033 |
| 23 | 0.0099 | 0.0122 | 0.0090 | 0.0111 | 0.0209 | 0.0260 | 0.0099 | 0.0122 | 0.0064 | 0.0028 |
| 24 | 0.0086 | 0.0107 | 0.0088 | 0.0104 | 0.0182 | 0.0248 | 0.0086 | 0.0107 | 0.0057 | 0.0023 |
| 25 | 0.0074 | 0.0094 | 0.0082 | 0.0098 | 0.0159 | 0.0225 | 0.0074 | 0.0094 | 0.0051 | 0.0000 |
| 26 | 0.0064 | 0.0083 | 0.0077 | 0.0092 | 0.0138 | 0.0205 | 0.0064 | 0.0083 | 0.0044 | 0.0000 |
| 27 | 0.0055 | 0.0072 | 0.0071 | 0.0086 | 0.0121 | 0.0187 | 0.0055 | 0.0072 | 0.0038 | 0.0000 |
| 28 | 0.0048 | 0.0064 | 0.0067 | 0.0081 | 0.0105 | 0.0170 | 0.0048 | 0.0064 | 0.0031 | 0.0000 |
| 29 | 0.0042 | 0.0056 | 0.0062 | 0.0076 | 0.0092 | 0.0155 | 0.0042 | 0.0056 | 0.0025 | 0.0000 |
| 30+ | 0.0036 | 0.0049 | 0.0058 | 0.0072 | 0.0080 | 0.0141 | 0.0036 | 0.0049 | 0.0018 | 0.0000 |

*Rates have been rounded for display purposes.*

**Probability of Vesting upon Termination***

*(for those not eligible to retire early)*

| | PERS | | TRS | | SERS | PSERS | LEOFF | | WSPRS |
|---|---|---|---|---|---|---|---|---|---|
| | Plan 1 | Plan 2 | Plan 1 | Plan 2 | Plan 2 | Plan 2 | Plan 1 | Plan 2 | |
| Service Years | Male & Female | Male & Female | Male & Female | Male & Female | Male & Female | Male & Female | Male & Female | Male & Female | Male & Female |
| 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 1 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | 0.500 | 0.550 | 0.725 | 0.700 | 0.650 | 0.550 | 1.000 | 0.325 | 0.475 |
| 6 | 0.500 | 0.550 | 0.775 | 0.700 | 0.675 | 0.550 | 1.000 | 0.350 | 0.475 |
| 7 | 0.550 | 0.550 | 0.800 | 0.700 | 0.675 | 0.550 | 1.000 | 0.350 | 0.475 |
| 8 | 0.550 | 0.550 | 0.800 | 0.750 | 0.675 | 0.550 | 1.000 | 0.350 | 0.475 |
| 9 | 0.600 | 0.575 | 0.800 | 0.750 | 0.700 | 0.575 | 1.000 | 0.375 | 0.475 |
| 10 | 0.600 | 0.575 | 0.800 | 0.750 | 0.700 | 0.575 | 1.000 | 0.375 | 0.475 |
| 11 | 0.600 | 0.600 | 0.825 | 0.775 | 0.700 | 0.600 | 1.000 | 0.400 | 0.475 |
| 12 | 0.600 | 0.625 | 0.825 | 0.800 | 0.700 | 0.625 | 1.000 | 0.400 | 0.500 |
| 13 | 0.600 | 0.625 | 0.875 | 0.800 | 0.700 | 0.625 | 1.000 | 0.400 | 0.500 |
| 14 | 0.650 | 0.625 | 0.875 | 0.850 | 0.750 | 0.625 | 1.000 | 0.400 | 0.500 |
| 15 | 0.650 | 0.650 | 0.875 | 0.850 | 0.750 | 0.650 | 1.000 | 0.400 | 0.500 |
| 16 | 0.650 | 0.650 | 0.875 | 0.850 | 0.775 | 0.650 | 1.000 | 0.450 | 0.500 |
| 17 | 0.650 | 0.675 | 0.875 | 0.850 | 0.775 | 0.675 | 1.000 | 0.450 | 0.500 |
| 18 | 0.675 | 0.675 | 0.875 | 0.900 | 0.775 | 0.675 | 1.000 | 0.500 | 0.550 |
| 19 | 0.675 | 0.675 | 0.875 | 0.900 | 0.775 | 0.675 | 1.000 | 0.550 | 0.600 |
| 20 | 0.675 | 0.750 | 0.900 | 0.950 | 0.800 | 0.788 | 1.000 | 0.600 | 0.750 |
| 21 | 0.675 | 0.750 | 0.900 | 0.950 | 0.825 | 0.788 | 1.000 | 0.600 | 0.800 |
| 22 | 0.675 | 0.750 | 0.900 | 0.950 | 0.850 | 0.788 | 1.000 | 0.650 | 0.900 |
| 23 | 0.675 | 0.800 | 0.925 | 0.950 | 0.850 | 0.840 | 1.000 | 0.800 | 1.000 |
| 24 | 0.675 | 0.800 | 0.925 | 0.950 | 0.850 | 0.840 | 1.000 | 0.850 | 1.000 |
| 25 | 0.700 | 0.800 | 0.925 | 0.950 | 0.850 | 0.840 | 1.000 | 0.900 | 1.000 |
| 26 | 0.750 | 0.800 | 0.950 | 0.950 | 0.850 | 0.840 | 1.000 | 0.900 | 1.000 |
| 27 | 0.750 | 0.850 | 1.000 | 0.975 | 0.900 | 0.893 | 1.000 | 0.900 | 1.000 |
| 28 | 0.850 | 0.850 | 1.000 | 0.975 | 0.900 | 0.893 | 1.000 | 0.950 | 1.000 |
| 29 | 0.900 | 0.900 | 1.000 | 0.975 | 0.900 | 0.945 | 1.000 | 0.950 | 1.000 |
| 30+ | 0.950 | 0.950 | 1.000 | 1.000 | 0.950 | 0.950 | 1.000 | 0.950 | 1.000 |

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

| Ratio of Survivors Selecting Annuities* | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERS 1 | | PERS 2 | | PERS 3 | | TRS 1 | | TRS 2 | | TRS 3 | |
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.13 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.17 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.20 |
| 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.23 |
| 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.25 |
| 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.27 |
| 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.29 |
| 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.31 |
| 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.32 |
| 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.34 |
| 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.35 |
| 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.36 |
| 40 | 0.26 | 0.00 | 0.02 | 0.00 | 0.25 | 0.20 | 0.28 | 0.03 | 0.00 | 0.00 | 0.33 | 0.37 |
| 41 | 0.34 | 0.06 | 0.05 | 0.01 | 0.27 | 0.20 | 0.37 | 0.14 | 0.00 | 0.00 | 0.35 | 0.38 |
| 42 | 0.39 | 0.14 | 0.07 | 0.02 | 0.29 | 0.20 | 0.43 | 0.21 | 0.00 | 0.00 | 0.36 | 0.39 |
| 43 | 0.43 | 0.19 | 0.10 | 0.04 | 0.31 | 0.21 | 0.46 | 0.25 | 0.00 | 0.00 | 0.37 | 0.40 |
| 44 | 0.46 | 0.23 | 0.12 | 0.05 | 0.33 | 0.21 | 0.49 | 0.29 | 0.00 | 0.00 | 0.38 | 0.41 |
| 45 | 0.48 | 0.26 | 0.15 | 0.06 | 0.35 | 0.21 | 0.51 | 0.32 | 0.00 | 0.00 | 0.39 | 0.42 |
| 46 | 0.50 | 0.29 | 0.17 | 0.08 | 0.37 | 0.22 | 0.53 | 0.35 | 0.03 | 0.00 | 0.40 | 0.43 |
| 47 | 0.52 | 0.32 | 0.20 | 0.09 | 0.39 | 0.22 | 0.55 | 0.37 | 0.07 | 0.01 | 0.41 | 0.43 |
| 48 | 0.53 | 0.34 | 0.22 | 0.11 | 0.41 | 0.22 | 0.57 | 0.39 | 0.11 | 0.04 | 0.42 | 0.44 |
| 49 | 0.54 | 0.36 | 0.25 | 0.12 | 0.43 | 0.23 | 0.58 | 0.40 | 0.14 | 0.07 | 0.43 | 0.45 |

*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 and WSPRS 2 ratios are 0.642 for duty-related deaths.*

**Ratio of Survivors Selecting Annuities***

*(Continued)*

| Age | PERS 1 | | PERS 2 | | PERS 3 | | TRS 1 | | TRS 2 | | TRS 3 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| 50 | 0.56 | 0.37 | 0.27 | 0.13 | 0.45 | 0.23 | 0.59 | 0.42 | 0.18 | 0.10 | 0.44 | 0.45 |
| 51 | 0.57 | 0.39 | 0.29 | 0.15 | 0.47 | 0.24 | 0.60 | 0.43 | 0.22 | 0.13 | 0.45 | 0.46 |
| 52 | 0.58 | 0.40 | 0.32 | 0.16 | 0.49 | 0.24 | 0.61 | 0.45 | 0.26 | 0.16 | 0.45 | 0.47 |
| 53 | 0.58 | 0.42 | 0.34 | 0.18 | 0.51 | 0.24 | 0.62 | 0.46 | 0.30 | 0.19 | 0.46 | 0.47 |
| 54 | 0.59 | 0.43 | 0.37 | 0.19 | 0.53 | 0.25 | 0.63 | 0.47 | 0.34 | 0.22 | 0.47 | 0.48 |
| 55 | 0.60 | 0.44 | 0.39 | 0.20 | 0.55 | 0.25 | 0.64 | 0.48 | 0.37 | 0.25 | 0.48 | 0.48 |
| 56 | 0.61 | 0.45 | 0.42 | 0.22 | 0.57 | 0.25 | 0.65 | 0.49 | 0.41 | 0.28 | 0.48 | 0.49 |
| 57 | 0.62 | 0.46 | 0.44 | 0.23 | 0.59 | 0.26 | 0.65 | 0.50 | 0.45 | 0.31 | 0.49 | 0.49 |
| 58 | 0.62 | 0.47 | 0.47 | 0.25 | 0.61 | 0.26 | 0.66 | 0.51 | 0.49 | 0.34 | 0.50 | 0.50 |
| 59 | 0.63 | 0.48 | 0.49 | 0.26 | 0.63 | 0.26 | 0.67 | 0.52 | 0.53 | 0.37 | 0.50 | 0.50 |
| 60 | 0.64 | 0.49 | 0.52 | 0.28 | 0.65 | 0.27 | 0.67 | 0.52 | 0.56 | 0.40 | 0.51 | 0.51 |
| 61 | 0.64 | 0.50 | 0.54 | 0.29 | 0.67 | 0.27 | 0.68 | 0.53 | 0.60 | 0.43 | 0.52 | 0.51 |
| 62 | 0.68 | 0.54 | 0.60 | 0.34 | 0.73 | 0.31 | 0.72 | 0.57 | 0.67 | 0.50 | 0.55 | 0.55 |
| 63 | 0.68 | 0.55 | 0.62 | 0.35 | 0.75 | 0.31 | 0.72 | 0.58 | 0.71 | 0.53 | 0.56 | 0.56 |
| 64 | 0.69 | 0.55 | 0.65 | 0.36 | 0.77 | 0.32 | 0.73 | 0.58 | 0.75 | 0.56 | 0.57 | 0.56 |
| 65 | 0.69 | 0.56 | 0.67 | 0.38 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.57 | 0.56 |
| 66 | 0.70 | 0.57 | 0.70 | 0.39 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.58 | 0.57 |
| 67 | 0.70 | 0.57 | 0.72 | 0.41 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.58 | 0.57 |
| 68 | 0.71 | 0.58 | 0.75 | 0.42 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.59 | 0.58 |
| 69 | 0.71 | 0.59 | 0.77 | 0.44 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.59 | 0.58 |
| 70 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 71 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 72 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 73 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 74 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 75 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 76 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 77 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 78 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 79 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |
| 80 | 0.72 | 0.59 | 0.80 | 0.45 | 0.79 | 0.32 | 0.73 | 0.59 | 0.79 | 0.59 | 0.60 | 0.58 |

*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 and WSPRS 2 ratios are 0.642 for duty-related deaths.*

| Ratio of Survivors Selecting Annuities* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SERS 2 | | SERS 3 | | PSERS | | LEOFF 1 | LEOFF 2 | WSPRS 1 | WSPRS 2 |
| Age | Male | Female | Male | Female | Male | Female | M&F | M&F | M&F | M&F |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.12 |
| 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.00 | 0.19 |
| 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 | 0.24 |
| 35 | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.28 | 0.00 | 0.28 |
| 36 | 0.00 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.32 |
| 37 | 0.00 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 | 0.35 |
| 38 | 0.00 | 0.00 | 0.00 | 0.30 | 0.04 | 0.01 | 0.00 | 0.38 | 0.00 | 0.38 |
| 39 | 0.00 | 0.00 | 0.00 | 0.31 | 0.10 | 0.04 | 0.00 | 0.41 | 0.00 | 0.41 |
| 40 | 0.00 | 0.00 | 0.00 | 0.32 | 0.15 | 0.07 | 0.64 | 0.43 | 0.64 | 0.43 |
| 41 | 0.00 | 0.00 | 0.02 | 0.32 | 0.19 | 0.10 | 0.64 | 0.45 | 0.64 | 0.45 |
| 42 | 0.03 | 0.05 | 0.11 | 0.33 | 0.22 | 0.12 | 0.64 | 0.47 | 0.64 | 0.47 |
| 43 | 0.09 | 0.10 | 0.17 | 0.33 | 0.25 | 0.14 | 0.64 | 0.49 | 0.64 | 0.49 |
| 44 | 0.14 | 0.13 | 0.22 | 0.34 | 0.28 | 0.16 | 0.64 | 0.51 | 0.64 | 0.51 |
| 45 | 0.18 | 0.16 | 0.26 | 0.34 | 0.30 | 0.17 | 0.64 | 0.52 | 0.64 | 0.52 |
| 46 | 0.21 | 0.18 | 0.29 | 0.34 | 0.32 | 0.19 | 0.64 | 0.54 | 0.64 | 0.54 |
| 47 | 0.24 | 0.20 | 0.32 | 0.35 | 0.34 | 0.20 | 0.64 | 0.55 | 0.64 | 0.55 |
| 48 | 0.26 | 0.22 | 0.35 | 0.35 | 0.36 | 0.21 | 0.64 | 0.56 | 0.64 | 0.56 |
| 49 | 0.29 | 0.24 | 0.37 | 0.35 | 0.38 | 0.22 | 0.64 | 0.58 | 0.64 | 0.58 |

*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 and WSPRS 2 ratios are 0.642 for duty-related deaths.*

**Ratio of Survivors Selecting Annuities***

*(Continued)*

| | SERS 2 | | SERS 3 | | PSERS | | LEOFF 1 | LEOFF 2 | WSPRS 1 | WSPRS 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | M&F | M&F | M&F | M&F |
| 50 | 0.31 | 0.25 | 0.39 | 0.36 | 0.40 | 0.23 | 0.64 | 0.59 | 0.64 | 0.59 |
| 51 | 0.32 | 0.27 | 0.41 | 0.36 | 0.41 | 0.24 | 0.64 | 0.60 | 0.64 | 0.60 |
| 52 | 0.34 | 0.28 | 0.43 | 0.36 | 0.43 | 0.25 | 0.64 | 0.61 | 0.64 | 0.61 |
| 53 | 0.36 | 0.29 | 0.44 | 0.36 | 0.44 | 0.26 | 0.64 | 0.62 | 0.64 | 0.62 |
| 54 | 0.37 | 0.30 | 0.46 | 0.36 | 0.45 | 0.27 | 0.64 | 0.63 | 0.64 | 0.63 |
| 55 | 0.39 | 0.31 | 0.47 | 0.37 | 0.47 | 0.28 | 0.64 | 0.64 | 0.64 | 0.64 |
| 56 | 0.40 | 0.32 | 0.48 | 0.37 | 0.48 | 0.29 | 0.64 | 0.65 | 0.64 | 0.65 |
| 57 | 0.41 | 0.33 | 0.50 | 0.37 | 0.49 | 0.29 | 0.64 | 0.66 | 0.64 | 0.66 |
| 58 | 0.42 | 0.34 | 0.51 | 0.37 | 0.50 | 0.30 | 0.64 | 0.67 | 0.64 | 0.67 |
| 59 | 0.43 | 0.35 | 0.52 | 0.37 | 0.51 | 0.31 | 0.64 | 0.67 | 0.64 | 0.67 |
| 60 | 0.44 | 0.35 | 0.53 | 0.37 | 0.52 | 0.31 | 0.64 | 0.68 | 0.64 | 0.68 |
| 61 | 0.45 | 0.36 | 0.54 | 0.38 | 0.53 | 0.32 | 0.64 | 0.69 | 0.64 | 0.69 |
| 62 | 0.49 | 0.40 | 0.58 | 0.41 | 0.57 | 0.36 | 0.67 | 0.73 | 0.67 | 0.73 |
| 63 | 0.50 | 0.41 | 0.59 | 0.41 | 0.58 | 0.37 | 0.67 | 0.74 | 0.67 | 0.74 |
| 64 | 0.51 | 0.41 | 0.60 | 0.41 | 0.59 | 0.37 | 0.67 | 0.75 | 0.67 | 0.75 |
| 65 | 0.52 | 0.42 | 0.61 | 0.41 | 0.60 | 0.38 | 0.67 | 0.75 | 0.67 | 0.75 |
| 66 | 0.53 | 0.43 | 0.62 | 0.42 | 0.61 | 0.38 | 0.67 | 0.75 | 0.67 | 0.75 |
| 67 | 0.54 | 0.43 | 0.62 | 0.42 | 0.62 | 0.39 | 0.67 | 0.75 | 0.67 | 0.75 |
| 68 | 0.54 | 0.44 | 0.63 | 0.42 | 0.62 | 0.39 | 0.67 | 0.75 | 0.67 | 0.75 |
| 69 | 0.55 | 0.44 | 0.64 | 0.42 | 0.63 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 70 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 71 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 72 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 73 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 74 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 75 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 76 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 77 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 78 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 79 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |
| 80 | 0.56 | 0.45 | 0.65 | 0.42 | 0.64 | 0.40 | 0.67 | 0.75 | 0.67 | 0.75 |

*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 and WSPRS 2 ratios are 0.642 for duty-related deaths.*

| Early Retirement Factors | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Years Early | PERS 2/3, TRS 2/3, SERS 2/3 | WSPRS 2, PERS 1, TRS 1 | PSERS 2, PERS 1 TV, WSPRS 1/2 TV | LEOFF 2 | LEOFF 2 Subsidized 3%* | PSERS 2 Subsidized 3%* | Plan 2/3 Subsidized** | Plan 2/3 Subsidized 5%** |
| 0 | 1.000 | 1.000 | 1.000 | 1.000 | 1.00 | 1.00 | 1.00 | 1.00 |
| 1 | 0.898 | 0.910 | 0.903 | 0.914 | 0.97 | 1.00 | 1.00 | 0.95 |
| 2 | 0.808 | 0.829 | 0.817 | 0.836 | 0.94 | 1.00 | 1.00 | 0.90 |
| 3 | 0.728 | 0.757 | 0.740 | 0.765 | 0.91 | 1.00 | 1.00 | 0.85 |
| 4 | 0.657 | 0.691 | 0.672 | 0.701 | N/A | 1.00 | 0.98 | 0.80 |
| 5 | 0.594 | 0.632 | 0.610 | 0.642 | N/A | 1.00 | 0.95 | 0.75 |
| 6 | 0.537 | 0.578 | 0.555 | 0.589 | N/A | 0.97 | 0.92 | 0.70 |
| 7 | 0.487 | 0.529 | 0.505 | 0.541 | N/A | 0.94 | 0.89 | 0.65 |
| 8 | 0.442 | 0.485 | 0.460 | 0.497 | N/A | 0.91 | 0.86 | 0.60 |
| 9 | 0.401 | 0.445 | 0.420 | 0.456 | N/A | 0.88 | 0.83 | 0.55 |
| 10 | 0.365 | 0.409 | 0.383 | 0.420 | N/A | 0.85 | 0.80 | 0.50 |
| 11 | 0.332 | 0.375 | 0.350 | 0.386 | N/A | 0.82 | N/A | N/A |
| 12 | 0.302 | 0.345 | 0.319 | 0.355 | N/A | 0.79 | N/A | N/A |
| 13 | 0.275 | 0.317 | 0.292 | 0.327 | N/A | N/A | N/A | N/A |
| 14 | 0.251 | 0.291 | 0.267 | 0.301 | N/A | N/A | N/A | N/A |
| 15 | 0.229 | 0.268 | 0.245 | 0.278 | N/A | N/A | N/A | N/A |
| 16 | 0.209 | 0.246 | 0.224 | 0.256 | N/A | N/A | N/A | N/A |
| 17 | 0.191 | 0.227 | 0.205 | 0.236 | N/A | N/A | N/A | N/A |
| 18 | 0.175 | 0.208 | 0.188 | 0.218 | N/A | N/A | N/A | N/A |
| 19 | 0.160 | 0.192 | 0.173 | 0.201 | N/A | N/A | N/A | N/A |
| 20 | 0.146 | 0.176 | 0.158 | 0.186 | N/A | N/A | N/A | N/A |
| 21 | 0.134 | 0.162 | 0.145 | 0.171 | N/A | N/A | N/A | N/A |
| 22 | 0.123 | 0.149 | 0.133 | 0.158 | N/A | N/A | N/A | N/A |
| 23 | 0.112 | 0.138 | 0.123 | 0.146 | N/A | N/A | N/A | N/A |
| 24 | 0.103 | 0.127 | 0.113 | 0.135 | N/A | N/A | N/A | N/A |
| 25 | 0.100 | 0.117 | 0.103 | 0.125 | N/A | N/A | N/A | N/A |
| 26 | 0.100 | 0.107 | 0.100 | 0.116 | N/A | N/A | N/A | N/A |
| 27 | 0.100 | 0.100 | 0.100 | 0.107 | N/A | N/A | N/A | N/A |
| 28 | 0.100 | 0.100 | 0.100 | 0.100 | N/A | N/A | N/A | N/A |
| 29 | 0.100 | 0.100 | 0.100 | 0.100 | N/A | N/A | N/A | N/A |
| 30+ | 0.100 | 0.100 | 0.100 | 0.100 | N/A | N/A | N/A | N/A |

*From Normal Retirement Age. TV=Terminated Vested.*

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

*PSERS 2 members must be at least age 53 with 20 or more years of service to qualify.*

***PERS 2/3, TRS 2/3, and SERS 2/3 members must be at least 55 with 30 or more years of service to qualify. Qualified members hired on or after 5/1/2013 will receive a 5% subsidized ERF.*

| Average Final Compensation Load | |
|---|---|
| System/Plan | Load |
| PERS 1 | 4.00% |
| TRS 1 | 0.75% |
| LEOFF 1 | 4.50% |
| WSPRS 1 | 7.00% |

*Reflects allowances for cashouts of annual and sick leave for calculation of Average Final Compensation.*

| Member/Beneficiary Age Difference (In Years) | | |
|---|---|---|
| System | Male Member | Female Member |
| PERS | 3 | (1) |
| TRS | 3 | (1) |
| SERS | 3 | (1) |
| PSERS | 3 | (1) |
| LEOFF | 3 | (1) |
| WSPRS | 3 | (1) |

*Age difference is Member age minus Beneficiary age.*

| Certain and Life Annuities: Years Certain | |
|---|---|
| System | |
| PERS 1 | 4 |
| PERS 2 | 4 |
| TRS 1* | 9 |
| TRS 2 | 5 |
| SERS 2 | 4 |
| PSERS 2 | 4 |
| LEOFF 1 | 3 |
| LEOFF 2 | 5 |
| WSPRS 1 | 4 |
| WSPRS 2 | 5 |

**Only disabled members get this without a reduction in their benefit. The certain period applies to only the "annuity" portion of the benefit, typically 40% of the total benefit.*

| Assumed Retirement Age from Inactive Status | | |
|---|---|---|
| System | Plans | Retirement Age |
| PERS | 1 | 65 (60 under certain circumstances) |
| | 2 | 65 (55 if service >= 30 years) |
| | 3 | 65 (55 if service >= 30 years)* |
| TRS | 1 | Same eligibility as if the member were active |
| | 2 | Same as PERS 2 |
| | 3 | Same as PERS 3 |
| SERS | 2 | Same as PERS 2 |
| | 3 | Same as PERS 3 |
| PSERS | 2 | Same eligibility as if the member were active |
| LEOFF | 2 | 53 (50 if service >= 20 years) |
| WSPRS | 1/2 | 60 |

**See table to the right if service is at least 20 years, but less than 30 years.*

| Military Service | |
|---|---|
| | Increase Factor |
| PERS 1* | |
| Males | 1.5% |
| Females | 0.1% |
| WSPRS 1** | |
| Males | 3.0% |
| Females | 1.0% |

*Members with 25 years of service may receive up to 5 years of military service credit.*

**Members of PERS Plan 1 may use certain prior military service as well as interruptive military service.*

***Members of WSPRS Plan 1 may use all prior military service as well as interruptive military service.*

| Percent Plan 3 Members Deferring Retirement | |
|---|---|
| Member Age | Deferral Percent* |
| 55 | 85% |
| 56 | 85% |
| 57 | 75% |
| 58 | 75% |
| 59 | 75% |
| 60 | 60% |
| 61 | 40% |
| 62 | 40% |
| 63 | 20% |
| 64 | 15% |

**Probability a Plan 3 member who terminates before age 65 with between 20 and 30 years of service will defer retirement until age 65.*

| Duty-Related Death Assumption | |
|---|---|
| System | Duty Death Rate* |
| PERS | 0.0018% |
| TRS | 0.0008% |
| SERS | 0.0018% |
| PSERS | 0.0018% |
| LEOFF 1 | 0.0350% |
| LEOFF 2 | 0.0350% |
| WSPRS | 0.0200% |

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

| LEOFF 2 Duty-Related Disability Assumption | |
|---|---|
| Age | Duty Disability Rate* |
| 20 | 97.25% |
| 25 | 95.86% |
| 30 | 94.50% |
| 35 | 93.11% |
| 40 | 91.75% |
| 45 | 89.00% |
| 50 | 86.25% |
| 55+ | 83.50% |

**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** | 12% |
| **Percent of deaths assumed to be caused by occupational diseases for fire fighters** | |
| **Age** | **Rate** |
| 20-49 | 14.74% |
| 50-69 | 27.39% |
| **Percent of Final Average Salary paid for catastrophic disability benefits (including offset adjustments).** | 44% |

| Average Ratio of Survivors of Inactive Deaths Selecting Annuities* | | | |
|---|---|---|---|
| System | Plan 1 | Plan 2 | Plan 3 |
| PERS | 59% | 31% | 40% |
| TRS | 61% | 39% | 48% |
| SERS | N/A | 33% | 39% |
| PSERS | N/A | 27% | N/A |
| LEOFF | 100% | 56% | N/A |
| WSPRS | 64% | 56% | N/A |

**Refers to survivor who selects annuity payments (rather than a lump sum payment) if a currently terminated vested member dies before retirement age.*

| Joint and 100 Percent Survivor Option Factors* | | | |
|---|---|---|---|
| System | Plans | Male Members | Female Members |
| PERS | 1 | 0.869 | 0.893 |
| | 2/3 | 0.780 | 0.828 |
| TRS | 1 | 0.893 | 0.914 |
| | 2/3 | 0.805 | 0.856 |
| SERS | 2/3 | 0.765 | 0.845 |
| PSERS | 2 | 0.797 | 0.826 |
| LEOFF** | 2 | 0.859 | 0.881 |
| WSPRS** | 1 | 0.944 | 0.956 |
| WSPRS** | 2 | 0.885 | 0.904 |

**Applied to on-going survivor benefits in the event of a pre-retirement death. Based on our member / beneficiary age difference assumptions and the option factors in WAC 415-02-380.*

***Standard survivor benefits in LEOFF 1 are not reduced. WSPRS Plan 1 reductions apply for Option B. LEOFF Plan 2 and WSPRS Plan 2 reductions apply to non-duty death benefits only.*

| Employee Contribution Rates for Savings Fund Accrual | |
|---|---|
| System/Plans | Contribution Rate* |
| PERS 2 | 4.94% |
| TRS 2 | 6.19% |
| SERS 2 | 5.27% |
| PSERS 2 | 6.89% |
| LEOFF 2 | 8.41% |
| WSPRS 1/2 | 7.19% |

*This assumption helps us estimate the value of accumulated employee contributions with interest if a member elects a refund of contributions instead of a deferred retirement allowance upon termination.*

**PERS 1 and TRS 1 employee rates are set in statute at 6%. No LEOFF 1 rates are required as long as the plan remains fully funded. Plan 3 members do not contribute to the defined benefit plan.*

## Medical Premium Reimbursement

- RCW 41.26.510(5) and RCW 43.43.285(2)(b) state that qualified survivors and children of line-of-duty deaths (Survivors) in LEOFF 2 and WSPRS shall have medical premiums reimbursed from the retirement fund. The laws also provide that all survivors will be covered by the Public Employees Benefits Board (PEBB).
- RCW 41.26.470(10) states that LEOFF 2 members with total disabilities (Disabilities) and qualified family members shall have medical premiums reimbursed from the retirement fund.

The costs for these benefits are included in the results presented in this report. However, the benefits are funded through irrevocable trust funds, known as 401(h) accounts, from contribution rates selected by the Department of Retirement Systems (DRS) and the LEOFF 2 Board. These contribution rates are "carved out" of the total adopted contribution rates. DRS and the LEOFF 2 Board will periodically review the funding requirements for these benefits and adjust the 401(h) contribution rates as necessary.

The information in the next section represents methods and assumptions tied directly to the medical premium reimbursement benefits. Please see the *2013 Other Post-Employment Benefits Actuarial Valuation Report* (OPEB Report) for the following referenced assumptions.

### Medical Inflation

**Current and Future Survivors, and Future Disabilities:** Uniform Medical Plan (UMP) Medicare and Pre-Medicare assumptions without excise tax (OPEB report).

**Current Disabilities:** 5 percent per year.

### Percent Married

**Future Disabilities:** 85 percent.

**Current Disabilities:** 100 percent.

### Percent With Children

**Disabilities and Survivors:** 100 percent, one child each.

### Premium Percentages

When the data for members currently qualifying for total disability benefits does not provide information about how many family members are covered, we use the assumptions below to split the total premium into each family member's share.

| Premium Percentages *(Current Disabilities)* | |
|---|---|
| **Family Member** | **Percent of Total Premium** |
| **Primary** | 34% |
| **Spouse** | 49% |
| **Child** | 17% |
| **All** | 100% |

### Assumed Coverage Type, Future Disabilities

Fifty percent covered by policies provided under the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA).

Fifty percent covered by employer-provided policies.

## Assumed Timing/Length of Coverage

| Assumed Timing/Length of Coverage | | | |
|---|---|---|---|
| **Coverage Type** | **Beneficiary Type** | **Start of Coverage** | **End of Coverage** |
| **COBRA** | | | |
| | Future Disabilities | Upon Benefit Commencement | 2.5 Years after Commencement* |
| | Current Disabilities | Upon Benefit Commencement | 29 Months after Commencement |
| **Employer/PEBB** | | | |
| | Survivors and Spouses of Disabilities | Upon Benefit Commencement | Age 65** |
| | Disabilities | Upon Benefit Commencement | 29 Months after Commencement |
| | Child | Upon Benefit Commencement | 10 Years after Commencement** |
| **Medicare** | | | |
| | Future Disabilities | 2.5 Years after Commencement* | Paid for Life |
| | Current Disabilities | 29 Months after Commencement | Paid for Life |
| | Survivors and Spouses of Disabilities | Age 65** | Paid for Life** |
| **State-Provided Medicare Subsidy*** ** | | | |
| | Current and Future Disabilities | 29 Months After Commencement | Paid for Life |

**Because of a limitation in the model, we assume 2 years for 50% of members, and 3 years for 50% of members, depending on member's age at benefit commencement.*

***Benefits paid to spouses and child(ren) of Disabilities for the life of the member.*

****Whether member is covered by COBRA or other means, we assume the member is also covered under the state's explicit Medicare subsidy.*

## Assumed Premiums

| Disabilities (Used for Future Disabilities and Current Disabilities Who Have Missing Values) | | | |
|---|---|---|---|
| **Coverage Type** | **Family Member** | **Category** | **Annual Premium** |
| **COBRA** | | | |
| | Member | Pre-Medicare | $10,376.62 |
| | Spouse | Pre-Medicare | 5,807.57 |
| | Child | Pre-Medicare | $3,058.40 |
| **Employer** | | | |
| | Member | Pre-Medicare | $12,895.81 |
| | | Medicare | 7,854.30 |
| | Spouse | Pre-Medicare | 11,457.78 |
| | | Medicare | 7,392.38 |
| | Child | Pre-Medicare | $3,962.35 |
| **Total Disabilities** | | | |
| **State-Provided Medicare Subsidy** | | | |
| | **Age** | **Annual Subsidy** | |
| | Less than 25 | $6,472.80 | |
| | 25-27 | 4,084.80 | |
| | 28 and Above | $1,156.80 | |

| Future Survivors (Covered under PEBB Options) | | | |
|---|---|---|---|
| | | **Annual Premium** | |
| **Family Member** | **Category** | **Medical** | **Dental** |
| **Survivor** | | | |
| | Pre-Medicare | $6,549.96 | $556.08 |
| | Medicare | $2,630.88 | $556.08 |
| **Child** | | | |
| | Pre-Medicare | $4,856.88 | $556.08 |

## *Miscellaneous Assumptions/ Methods*

We include the following miscellaneous assumptions and methods in this valuation.

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

| | Non-Annuitants | Annuitants |
|---|---|---|
| **Minimum Age** | 16 | 20 |
| **Maximum Age** | 80 | 110 |

- Default entry salaries, usually increased for past service, are assigned for active members with less than two months' service during the valuation year.
- Historical salaries for vested terminated members are not provided in the valuation data. Beginning with the 2008 valuation year, we first look to see if we kept a historical salary for such a member in the prior year's data. If so, we copy the salary to the current year's data. If a member was active in the prior year and terminated in the current year, we copy the prior year's salary to the current year's salary and keep it as historical.

  Additionally, in 2009 we searched our data for actual salaries up to ten years prior for terminated vested members who did not already have historical salaries listed. To estimate salaries for the remaining terminated vested members, we use the following procedure. First, a salary appropriate for the given system/plan and the member's total past service is assigned. 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. Please see the *2007-2012 Experience Study Report* for a record of the salaries used.
- While DRS reports salaries earned during the year prior to the valuation date, the salaries used in the first year of the valuation process have received an additional merit 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.
- Members who receive a disability benefit are not assumed to return to active duty in the future.
- Disability and termination rates are discontinued after members are eligible to retire (with the exception of LEOFF and WSPRS disability rates).
- LEOFF Plan 1 and WSPRS Plan 1 use a slightly increased ratio of survivors selecting annuities over that displayed in the table presented earlier in this section. This assumption estimates the likelihood a qualified survivor will receive an ongoing benefit at the time of the member's death. The valuation software used also applies mortality assumptions to potential survivors, which results in an understatement of that future liability for those plans. To recognize this liability, we assume a 67 percent survivor annuity.
- We assume all survivors of currently retired WSPRS Plan 1 members who opted for the standard survivor benefit at retirement will receive an initial survivor benefit of 50 percent of the member's average final salary.
- We value the Basic Minimum COLA for PERS 1 and TRS 1 outside of our valuation software for members currently not receiving the benefit. The demographic assumptions we used to value this benefit provision were not updated for the *2007-12 Demographic Experience Study*.