LOUISIANA STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL EXPERIENCE STUDY
July 1, 2018 – June 30, 2023



FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

April 25, 2024

Board of Trustees
Louisiana State Employee's Retirement System
Post Office Box 44213
Baton Rouge, Louisiana 70804-9123

Dear Board Members:

The following report presents the results of our experience study of the actuarial assumptions of the Louisiana State Employee's Retirement System (LASERS) for the period July 1, 2018 through June 30, 2023. The report includes a review of demographic and economic experience, a comparison of this experience to current actuarial assumptions, our recommendations regarding changes in assumptions or methods to be effective for the June 30, 2024 actuarial valuation, and the estimated actuarial impact of these changes, determined as the impact the changes would have had on the June 30, 2023 valuation.

In preparing this report, we compiled experience for the Plans using data furnished by the retirement system. While we have not audited the information provided, the supplied information was reviewed for consistency and reasonableness. We have no reason to doubt the substantial accuracy of the information and believe it has produced appropriate results.

Future actuarial measurements may differ significantly from current measurements due to such factors as: plan experience differing from that anticipated by the assumptions; changes in assumptions; changes in plan provisions or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of such future measurements.

The study was prepared in accordance with the applicable Actuarial Standards of Practice issued by the Actuarial Standards Board. Shelley is an Associate in the Society of Actuaries and Pat is a Fellow in the Society of Actuaries. Shelley and Pat are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We would like to thank the executive director and staff for their assistance with this report. We look forward to presenting the conclusions and recommendations contained in this report to LASERS and are available to answer any questions concerning its contents.

Respectfully submitted,

FOSTER & FOSTER INC.

Shelley R. Johnson

Shelley R. Johnson, ASA, MAAA

D. Patrick McDonald

D. Patrick McDonald, FSA, EA, MAAA, FCA

TABLE OF CONTENTS

Page

1. INTRODUCTION 1

2. EXPERIENCE REVIEW SUMMARY 4

ECONOMIC ASSUMPTIONS 4
DEMOGRAPHIC ASSUMPTIONS 4
EXPECTED ACTUARIAL COST IMPACT 5

3. ECONOMIC ASSUMPTIONS 6

OVERVIEW 6
ADMINISTRATIVE EXPENSES 6
INFLATION 6
INVESTMENT RETURN & DISCOUNT RATE 9
SALARY AND REAL WAGE GROWTH 13

4. DEMOGRAPHIC ASSUMPTIONS 19

OVERVIEW 19
RETIREMENT RATES 20
WITHDRAWAL/TERMINATION RATES 24
MORTALITY RATES 28
DISABILITY INCIDENCE RATES 37
OTHER ASSUMPTIONS 39

5. APPENDIX 41

SALARY AND REAL WAGE GROWTH TABLES 41
RETIREMENT RATE TABLES 44
MORTALITY RATE TABLES 52
DISABILITY INCIDENCE RATE TABLES 56

INTRODUCTION

The purpose of this study is to review the current economic and demographic assumptions used in the actuarial valuations of the System's Plans to determine which changes, if any, are necessary in order to achieve the objective of developing costs that are stable, predictable, and represent our best estimate of anticipated future experience.

The ultimate cost of any defined benefit pension plan is the sum of the benefits paid from the plan and the administrative expenses incurred, less any net investment gains received. Therefore, the actual cost of a plan will only be known after all benefits accrued by the members are paid to the members or their beneficiaries. Since members who retire, become disabled, terminate or die are continuously replaced by new employees, the exact cost to the System cannot be determined at any one point in time. To assure that adequate assets will accumulate to meet current and future benefit obligations, the actuary must make certain demographic and economic assumptions about future contingent events in order to determine the funding requirements necessary to meet the actual cost. Economic assumptions include salary growth and investment growth, both of which include inflation as a component. The demographic assumptions include rates of retirement, withdrawal, disability, and mortality.

Although the ultimate cost is independent of the actuarial assumptions used to determine funding requirements, the assumptions should reflect the actuary's best estimate of future plan experience. If the assumptions are inappropriate or do not reflect the long-term plan experience, the plan will incur experience gains (over-funding) or experience losses (under-funding) which will exceed or fall short of the actual long-term plan cost. If the contributions determined based upon these assumptions are paid as required, and if the assumptions are in accordance with the actual experience of the plan, then sufficient assets will accumulate to pay the actual cost.

LASERS typically conducts an experience study every five years. The current observation period (July 1, 2018 - June 30, 2023) includes the most recent experience available. The experience study reviews the economic and demographic assumptions currently being used for valuing the following system Plans. "Plan" or "Plans" for purposes of this study is a subgroup within the System characterized by the following employee classifications:

- Rank and File
- Judges
- Hazardous Duty

Note the Rank and File experience includes Appellate Law Clerks for all but the retirement assumption analysis, where Appellate Law Clerk experience is included with Judges experience. Wildlife Plan experience for the termination assumption is evaluated separately from the other Hazardous Duty plans since terminations for this group of members continues to be substantially less than for other Hazardous Duty plans.

This report presents details of the experience analysis by Plan, the proposed assumptions, and the expected impact of the proposed changes on funding requirements. The following assumptions were included as part of this study:

- Administrative Expenses, Inflation, Investment Return and Discount Rate
- Salary and Real Wage Growth Rates
- Retirement Rates
- Withdrawal/Termination Rates
- Mortality Rates
- Disability Incidence Rates
- Other Assumptions

Please keep in mind that while the recommended assumption set represents our best estimate, other reasonable assumption sets could be supported. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

ACTUARIAL STANDARDS OF PRACTICE

The Actuarial Standards Board has provided coordinated guidance through a series of Actuarial Standards of Practice (ASOP) for measuring pension obligations and determining pension plan costs or contributions. The ASOPs that apply specifically to valuing pensions are as follows:

- ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, which ties together the standards shown below, provides guidance on actuarial cost methods, and addresses overall considerations for measuring pension obligations and determining plan costs or contributions.
- ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*
- ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*
- ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*
- ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions* states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

  The actuarial results presented in this report are determined under various assumption scenarios which are based on the premise that all future plan experience will align with the plan's actuarial assumptions. While these assumptions represent our best estimates of future plan experience, other reasonable assumption sets could be supported. There is no guarantee that actual plan experience will align with the plan's assumptions. Even where recommended assumptions reflect conservatism to allow for some margin of unfavorable future plan experience, it is still possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

  Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions. This gain or loss is amortized over a 30-year period with level payments, in accordance with state statutes. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

  Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized.

Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.

Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

Please see the June 30, 2023 actuarial valuation report for further discussion of risks.

Please note that the contents of this report are in compliance and consistent with the above-mentioned Actuarial Standards of Practice. When applicable, further details of the ASOP associated with the reviewed actuarial assumption will be provided in the discussion of the Economic Assumptions and Demographic Assumptions sections of this report.

EXPERIENCE REVIEW SUMMARY

Below is a summary of our key findings and proposed changes. The remainder of the document outlines our analysis and documents our recommendations.

ECONOMIC ASSUMPTIONS

- **Inflation:** We recommend increasing the current long-term inflation assumption from 2.30% to 2.40%.

- **Discount Rate:** We recommend no change to the current discount rate of 7.25%.

- **Salary Increases:** We recommend increasing the total salary increase assumptions for Rank and File and Hazardous Duty Plans. For Judges, we recommend small decreases to the total salary assumptions for members with less than one or greater than nineteen years of service and small increases for members with one to nineteen years of service. More information regarding experience and recommendations for the real salary changes can be found in the Salary Assumption section of this report.

DEMOGRAPHIC ASSUMPTIONS

- **Mortality Rates:** We analyzed mortality experience separately for general and public safety employees for active members, regular retirees and disability retirees. We analyzed combined mortality experience for survivors and beneficiaries. Based on this analysis, we recommend moving to the Pub10 tables, as specified in this report, for all except the disability retire mortality, for which we recommend retaining the current RP2000 rates, but multiplied by the factors specified in this report.

  We recommend projecting future mortality improvement for all tables above, except for the disability tables, using the MP-2021 Mortality Improvement Scale, applied on a fully generational basis. We recommend using no mortality improvement for disability retirees.

- **Retirement Rates**: We recommend retaining the current structure of age-based tables for Rank and File and Judges. We recommend changing the structure for Hazardous Duty Plans to coincide better with the retirement eligibility requirements for these plans. We recommend changes to the retirement rates to better reflect experience since 2018.

- **Disability Rates**: We recommend updating the disability rates to reflect experience since 2018.

- **Withdrawal/Termination Rates**: We recommend changes to the age/service categories for Rank and File and the Hazardous Duty Plans, except for Wildlife, which is analyzed separately for this assumption. We recommend changes to the withdrawal rate assumptions for all plans to better reflect withdrawal experience since 2018.

- **Other Assumptions:** We recommend retaining the percentages used to determine unisex mortality tables used for service purchase, service transfers, and option factor calculations, which are currently 40% male/60% female based on the distribution of current membership. Based on experience during the study period, we recommend some changes to the current assumed benefit increases resulting from converted sick and annual leave.

EXPECTED ACTUARIAL COST IMPACT

Adoption of the proposed assumption changes will be used in the June 30, 2024 actuarial valuation and will be reflected in employer rates beginning July 1, 2025. The total change in liability and funding requirements if they had been applied for the June 30, 2023 actuarial valuation would have been an overall increase in aggregate funding requirements of 1.43% of payroll.

The changes for each assumption change and in aggregate are summarized as follows:

Valuation Impact		
	Change in Accrued Liability	Change in Normal Cost
Salary growth rates	66,483,630	12,471,414
Retirement rates	57,533,351	1,564,582
Termination rates	(20,726,502)	5,620,523
Disability rates	6,490,403	942,364
Mortality rates	(23,056,721)	2,586,916
Other Assumptions	2,381,157	108,862
TOTAL	89,105,318	23,294,661
Aggregate Valuation Change *	89,599,749	24,640,863
Aggregate UAL Amortization Payment	7,148,112	
Projected Payroll (FY 24/25)	2,227,771,652	
Percent of Projected Payroll	0.32%	1.11%
Projected Aggr. Employer Contribution % Change (UAL Payment + Normal Cost)/(Proj. Payroll)l	**1.43%**	

* The Aggregate Valuation Change does not equal the sum of the individual changes because the decrements do not operate in isolation of each other. Changes to one decrement will alter the effects of changes to another decrement.

Estimated Employer Rate Impact			
	UAL Payment Change (%)	Normal Cost Change (%)	Total Change (%)
Rank and File	0.32%	1.05%	1.37%
Judges (aggregate)	0.32%	-0.52%	-0.20%
Hazardous Duty Plans (aggregate)	0.32%	1.90%	2.22%
Aggregate Employer Impact	0.32%	1.11%	**1.43%**

ECONOMIC ASSUMPTIONS

OVERVIEW

ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* provides guidance to actuaries in selecting (including giving advice on selecting) economic assumptions – primarily inflation, investment return, discount rate, and salary scale – for measuring defined benefit pension plan obligations.

Throughout the remainder of this section, we have used the standards set forth in ASOP No. 27 as a guideline for reviewing and if applicable, selecting proposed changes to the following economic actuarial assumption:

- Administrative Expenses
- Inflation
- Investment Return and Discount Rate
- Salary Increases

Please keep in mind that ASOP No. 27 states that "the best an actuary can do is to use professional judgment to estimate possible future economic outcomes based on past experience and future expectations, and to select assumptions based upon that application of professional judgment.

ADMINISTRATIVE EXPENSES

We typically base projected administrative expenses for the fiscal year immediately following the valuation date and for one subsequent year to determine the projected employer contribution rate for that year by considering the prior year administrative expense and discussing with staff whether if any significant changes are anticipated over the next two years. We recommend retaining this practice.

INFLATION

Inflation refers to general economic inflation, defined as price changes over the whole of the economy. The assumed inflation rate is the basis for the other economic assumptions, such as assumed investment returns, the discount rate, and salary increase assumptions.

In order to assess the reasonableness of the inflation assumption, we reviewed historical inflation, applicable inflation forecasts to the extent available, inflation assumptions used by the system's investment consultant and other investment consultants, and assumptions currently used by similar plans.

Following ASOP No. 27, which provides guidance on the selection of economic assumptions, our determination of an appropriate inflation assumption includes a review of recent and long-term historical inflation, without giving undue weight to recent experience. We note that long-term historical experience, beyond 35 or so years, is less meaningful given that the Federal Reserve Board's monetary policy changed in the 1980's toward more vigilance in preventing high inflation.

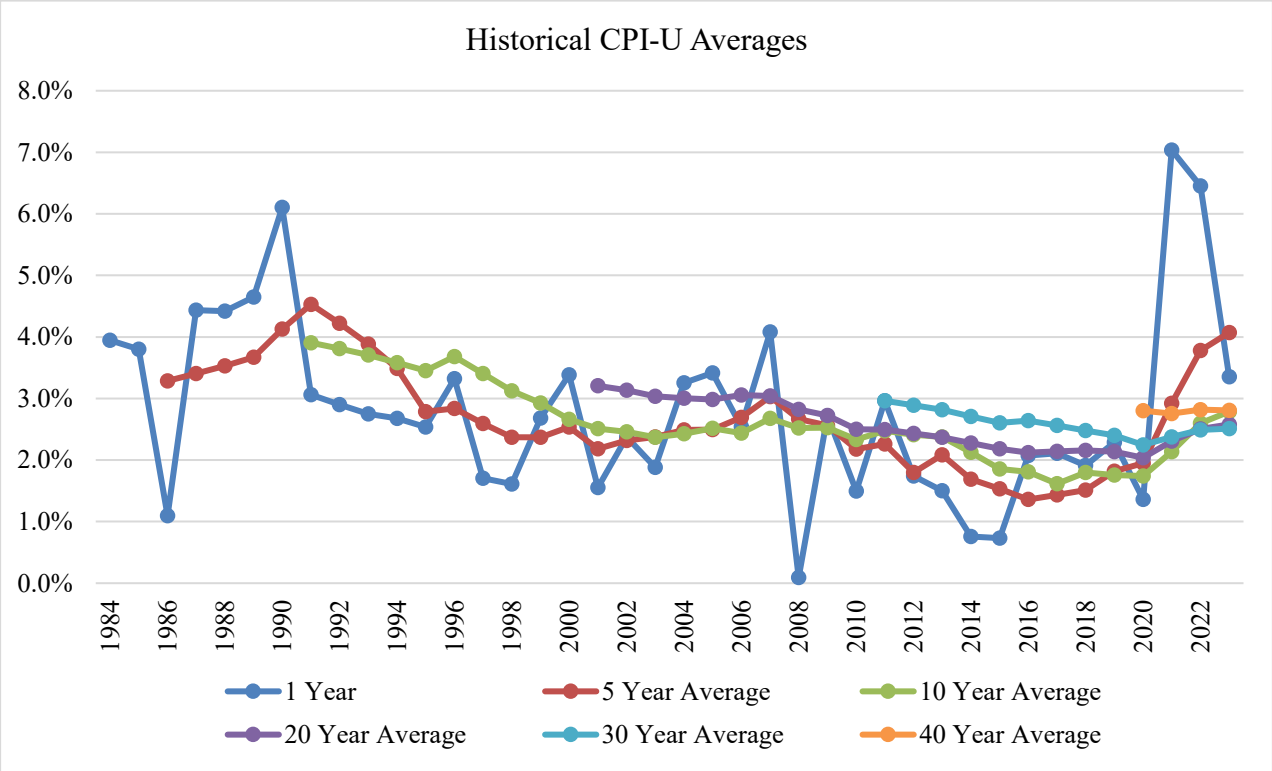
<u>Historical Inflation</u>

The table and chart below show the average historical change in the annual CPI-U, over various periods. We included several prior period average ending dates to show the impact of the recent high inflation rates on even the long-term historical averages.

Average Annual CPI-U Change	For Periods Ending Dec. 2020	For Periods Ending Dec. 2021	For Periods Ending Dec. 2022	For Periods Ending Dec. 2023
Last 5 years	1.9%	2.9%	3.8%	4.1%
Last 10 years	1.7%	2.1%	2.6%	2.8%
Last 20 years	2.0%	2.3%	2.5%	2.6%
Last 30 years	2.2%	2.4%	2.5%	2.5%
Last 40 years	2.8%	2.8%	2.8%	2.8%

Source: Bureau of Labor Statistics, CPI-U, all items, not seasonally adjusted

The chart below provides average historical inflation rates based on 12-month periods ending in December. Single year inflation rates increased significantly in 2021 and 2022. Excluding these years from the historical inflation rates results in significantly lower averages for the shorter-term averages. The current assumption of 2.30% would appear to be low based on very recent increases or forty-year averages but is more consistent with the 10- to 30-year averages ending in 2021 and 20- to 30-year averages ending in 2020.



Yields on Government Securities of Various Maturities

The spread between the nominal yield on treasury securities and the inflation indexed nominal yield on inflation protected treasury bills (TIPS) of the same maturity is referred to as the "breakeven rate of inflation" and represents the bond market's expectation of inflation over the period to maturity. Recent estimates[1] are shown in the tables below.

[1] https://home.treasury.gov/resource-center/data-chart-center/interest-rates/TextView?type=daily_treasury_real_yield_curve&field_tdr_date_value=2024

April 1, 2024 Published Yields			
Years to Maturity	Treasury Yield	TIPS Nominal Yield	Breakeven Rate of Inflation
10 Years	4.33%	1.98%	2.35%
30 Years	4.47%	2.17%	2.30%

Forecasts of Inflation

The Federal Reserve Bank of Philadelphia conducts a quarterly survey of the Society of Professional Forecasters and publishes a mid-term expectation. Their most recent forecast (third quarter of 2023) predicts average inflation over the next ten years (2023-2032) will be 2.40%[2]. The Philadelphia Fed's Livingston Survey summarizes the forecasts of economists from industry, government, banking, and academia. June 2023, and December 2023 reports show an average 10-year inflation expectation of 2.40% and 2.26%, respectfully[3,4].

The Social Security Administration's 2023 Trustees Report includes the Office of the Chief Actuary's projection of ultimate long-term (75 year) average annual inflation. The intermediate cost assumption is 2.40%[5]. The report provides a low-to-high range of 1.80% to 3.00%.

Forecasts from Investment Consulting Firms

NEPC, LASERS' investment consultant, currently uses a long-term inflation assumption of 2.60%. Horizon Actuarial Services, LLC, compiles and summarizes expected returns and volatility by asset class. The 2023 survey is based on assumptions from many investment firms. Results of the survey are provided in a report titled Survey of Capital Market Assumptions: 2023 Edition[6]. Forty-two investment firms participated in the survey, with 15 providing only short-term assumptions and 27 providing both short-term and long-term assumptions. The report defines the short-term horizon as 10 years and the long-term horizon as 20 years. The average inflation assumption utilized by these firms for the short-term horizon is 2.55% with a range from 2.2% to 3.2%, and the average inflation assumption utilized for the long-term horizon is 2.46%, with a range from 2.2% to 2.8%.

[2]https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/survey-of-professional-forecasters/historical-data/inflation.xlsx?la=en&hash=F9C3E76769B4586C3E36E403DFA54BDC
[3] https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/livingston-survey/2023/livjun23.pdf
[4] https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/livingston-survey/2023/livdec23.pdf
[5] https://www.ssa.gov/OACT/TR/2023/tr2023.pdf
[6] https://www.horizonactuarial.com/_files/ugd/f76a4b_1057ff4efa7244d6bb7b1a8fb88236e6.pdf

Recommendation

Based on the above considerations, we believe the current assumption of 2.30% continues to be reasonable; however, we recommend a slight increase in the long-term inflation assumption to 2.40% to align more with current long-term expectations of both financial markets and forecasters.

INVESTMENT RETURN & DISCOUNT RATE

The investment return and discount rate are among the most significant assumptions in the annual actuarial valuation process. Minor changes in the discount rate can have a major impact on valuation results. Investment earnings are used to fund plan benefits and a portion of investment experience gains are allocated to the experience account to fund future permanent benefit increases. The discount rate is used to discount the expected benefit payments for all active, inactive, and retired members of the System. Therefore, the discount rate is representative of expected investment earnings less earnings expected to be allocated to the experience account.

Investment return assumptions are typically net of investment expenses. The capital market assumptions developed by investment consulting firms used to develop our recommendations are net of investment expenses, therefore no further adjustments for these expenses are necessary.

Asset Allocation

The actual asset allocation of the trust significantly impacts the overall performance. LASERS' current target asset allocation is as follows:

Asset Class	Target Asset Allocation
Large Cap U.S. Equity	23.00%
Small/Mid Cap U.S. Equity	11.00%
International Equity (Developed)	12.00%
Emerging Markets Equity	6.00%
Core U.S. Fixed Income	3.00%
Global Multi-Sector Fixed Income	14.00%
Emerging Market Debt	3.00%
Private Equity	24.00%
Absolute Returns	4.00%
	100.00%

Historical Returns

ASOP No. 27 states that the actuary should evaluate relevant data, such as recent and long-term historical economic data, without giving undue weight to recent experience. Historical experience is not a reliable indicator of future experience. Future performance by asset class may vary significantly from historical performance and the current (and target) asset allocation of the trust, which significantly impacts future performance, is likely different than prior allocations. LASERS' historical annualized returns determined based on the market value of assets and the actuarial value of assets are shown in the chart below. Note these returns are net of investment expenses, but not net of administrative expenses or allocations to the experience account, so are comparable to the expected investment return before adjusting for these other expenses.

		Market	Actuarial
5 Year	7/2018 – 6/2023	6.58%	6.42%
10 Year	7/2013 – 6/2023	7.22%	7.65%
15 Year	7/2008 – 6/2023	6.58%	6.29%
20 Year	7/2003 – 6/2023	7.53%	7.36%
30 Year	7/1993 – 6/2023	7.24%	7.39%

LASERS' Investment Consultant's Expected Return

We generally look to the system's investment consultant as the starting point in determining our recommended long-term expected return assumption. NEPC's Capital Market Assumptions have been relatively volatile over the last few years as can be seen in the table below, which shows NEPC's expected returns for LASER target portfolio allocation. LASERS Board adopted significant changes to its target allocation policy in August 2020, with only minor tweaks since then. The following table shows the variation in recent aggregate expected returns for 10-years and 30-years. Note, the values provided below are NEPC's expected returns with no adjustments to account for LASERS inflation assumption or adjustment for private equity investments.

NEPC	10-Year	30-Year
8/31/2020	7.48%	7.85%
12/31/2021	6.47%	7.67%
12/31/2022	7.59%	8.41%
12/31/2023	6.96%	8.27%

LASERS investment staff internally manages the assets in the private equity class, therefore we consider LASERS expected return for this class rather than NEPC's. LASERS investment staff utilize a private equity return assumption of 11%. LASERS' historical 15- and 25-year returns for this asset category are 11.60% and 12.16%, respectively. Using LASERS' target portfolio allocation, NEPC's 30-year December 31, 2023 capital market assumptions for all but private equity and our recommended 2.40% inflation assumption, the long-term (30-year) expected return of the portfolio is 8.28%.

Other Investment Consultants

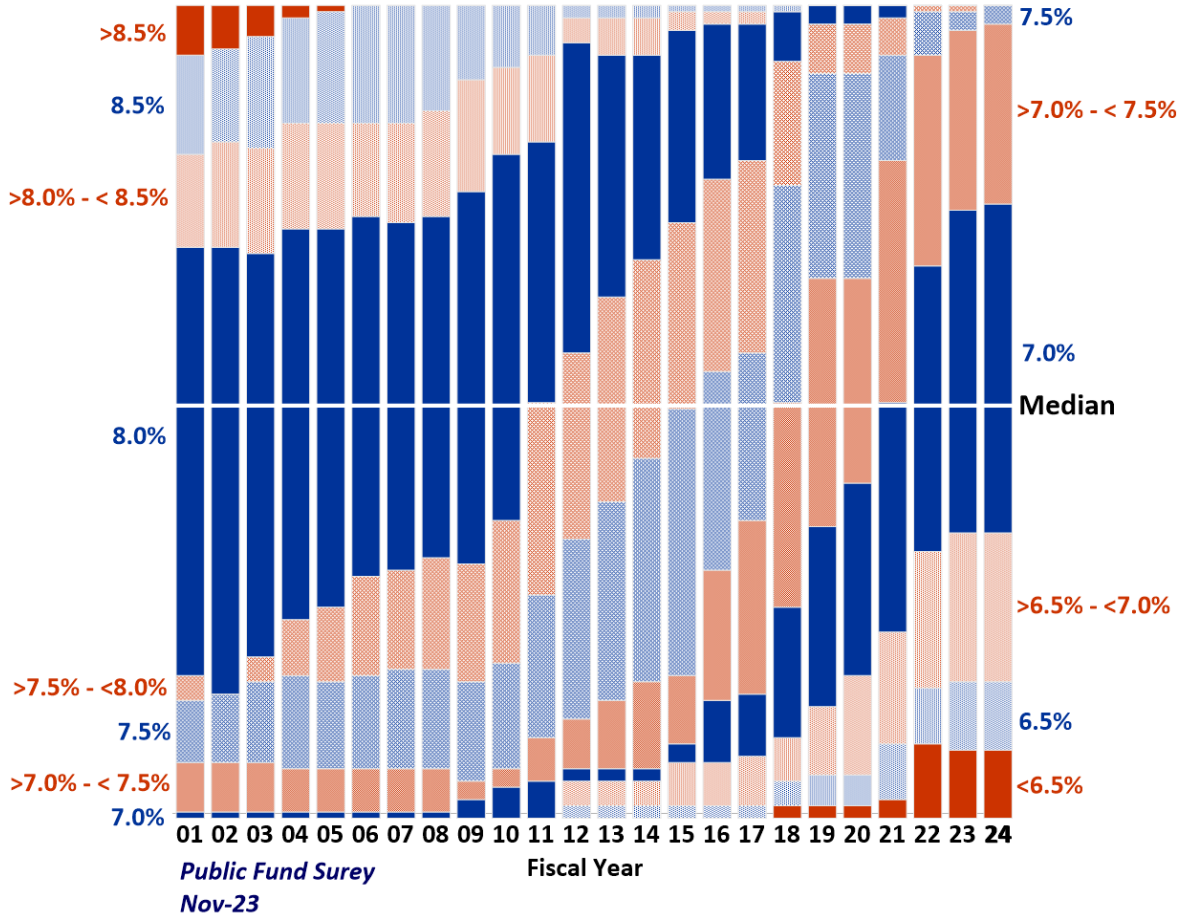
We utilized the Horizon Actuarial Services, LLC, 2023 survey of investment consulting firms (which includes NEPC), which was referenced in the section regarding inflation assumptions, to assess how NEPC's return expectations compare to other consulting firms. Given the significant increase in expected returns compared to the 2023 survey, we also considered the results of the 2022 survey. Note that the survey refers to the longer term returns as 20-year assumptions and states that the longer-term horizon is more appropriate for mature ongoing pension plans without solvency issues.

We mapped LASERS' target portfolio allocation to the average 20-year survey assumptions. Using the survey's average expected returns for all asset categories, and the associated standard deviation and covariance matrix, including the survey's average 20-year inflation assumption of 2.46%, the resulting expected long-term nominal return is 8.67%. With our recommended inflation assumption of 2.40%, the resulting 20-year expected nominal return is 8.61%. The returns in the survey are generally considered to be indexed and net of fees, so are comparable to the assumptions used to determine the expected return of 8.28%. Using the 2022 Survey assumptions and our recommended inflation assumption of 2.40%, the expected 20-year return for LASERS portfolio is 7.80%. A summary is provided below.

HAS Survey	10-Year	30-Year
2022 Survey	7.15%	7.80%
2023 Survey	8.32%	8.61%

Other Public Pension Plans

We do not consider assumptions used by other pension plans as the basis for determining our recommended assumptions, however, we recognize that the Board may be interested in knowing how our recommendations compare to assumptions used by other plans, particularly regarding the discount rate. When making comparisons to other plans, or to other time periods withing a plan, it is important to note that there are likely differences in investment policies, target asset allocations, and potentially various gain-sharing policies that may account for the differences. Over the past 20 years, public plans have been reducing their investment return assumptions. The median assumption among plans participating in NASRA's 2023 Public Fund Survey has decreased from 8.0% to 7.0% since 2010, as can be seen in the figure below.



Discount Rate and Gain-Sharing

Following the guidance of ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, we have evaluated the reasonableness of the discount rate by recognizing that a portion of investment experience gains will be transferred to the experience account to fund future ad hoc cost of living adjustments rather than used to fund regular plan benefits. In 2019, following our recommendation, the Board reduced the gain-sharing assumption from 40 to 35 basis points. This recommendation was determined assuming the gain-sharing provisions applicable at the time would remain in place indefinitely.

Act 184 of 2023 requires the Experience Account funding mechanism to end in the fiscal year in which the Original Amortization Base is paid off which will occur on or before June 30, 2029. Cost of Living Adjustments will be directly funded through the employer contribution rate beginning July 1, 2024. Since it is possible for gains to be credited to the Experience Account through fiscal year ending 2029, the prior long-term expectation of 35 basis point as an estimate for future gain-sharing is substantially reduced to a value approaching zero by 2029. We expect no more than one COLA to be paid from the Experience Account, resulting in a minimal need for a gain-sharing margin. We believe the conservative margin provided for by the difference between the discount rate and current long-term expected returns provides ample margin to account for the remaining limited, but possible gain-sharing potential, so the gain-sharing assumption is no longer needed.

Recommended Discount Rate for Funding

While the current discount rate of 7.25% is low relative to current expected market returns, we do not believe plan assumptions should immediately react to volatile swings in expected returns but expected returns should be monitored for sustained changes to prevent volatility in plan measurements and funding requirements. We recommend retaining the current 7.25% discount rate and will continue to monitor industry expected returns to ensure the discount rate is reasonable.

Recommended Discount Rate for GASB Reporting

GASB statements 67 and 68 generally require the discount rate to be determined based on the long-term expected rate of return. In discussions with LASERS' executive and investment staff, and external auditor, it was agreed that it was preferable to use the same discount rate for funding and GASB reporting, as long as the assumptions used are reasonable for each purpose. There is no reason to require that each be based on a single overall long-term expected rate of return. The LASERS Board agreed and has maintained the same discount rate for funding and GASB reporting.

ASOP 27 regarding the Selection of Economic Assumptions for Measuring Pension Obligations specifically addresses this in paragraph 3.6.2. which addresses the "Range of Reasonable Assumptions". The paragraph states "The actuary should recognize the uncertain nature of the items for which assumptions are selected and, as a result, may consider several different assumptions reasonable for a given measurement. The actuary should also recognize that different actuaries will apply different professional judgments and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice."

We continue to believe this is a reasonable approach. Given that staff and external auditors are comfortable with this approach, and actuarial standards of practice specifically allow it, we recommend continued use of the same discount rate as that used for funding purposes to be used for GASB reporting purposes.

SALARY AND REAL WAGE GROWTH

The salary increase assumption is used to project a member's annual salary each year from the valuation date through the assumed retirement age. This assumption plays an important role in measuring individual pension costs and obligations. The sum of inflation and the real wage growth components comprise the recommended salary increase assumption. The real rate of wage increase includes increases due to promotion and longevity, often called merit increases, which are generally service related. The sum of inflation and the real wage growth components comprise the nominal salary increase assumptions recommended below. In this report, we have recommended increasing the inflation assumption from 2.30% to 2.40%. We address the real and nominal wage growth assumptions below.

Experience and Recommended Assumptions

The current assumed salary growth rates vary by Plan and are based upon the member's years of service. To assess the current assumed annual increases and provide a basis for updated assumptions, we reviewed the actual salary experience for each individual year over the study period by comparing actual salary growth rates to assumed salary growth rates on a real and nominal basis. We found that salary growth rates were greater than currently assumed for Rank and File and Hazardous Duty members. Average salary increases for Judges were slightly less than expected.

We found that for Rank and File and Hazardous Duty members, aggregate salary increases from 2018 to 2019 and 2022 to 2023 were high relative to the other years in the experience period. The State Civil Service Department implemented a new compensation plan near the end of the prior experience study period. It was expected that aggregate salary growth rates would decrease with the new structure. However, the Department found that adjustments to the base salary scales were needed to keep salaries competitive for recruiting new employees and retaining current employees. These adjustments contributed to the higher salary growth rates from 2018 to 2019 and from 2022 to 2023. We considered excluding these years as outliers but ultimately decided to retain them since these adjustments are part of the actual experience, and over the long-term, adjustments to the scales will continue to be necessary for recruitment and retention of members.

It is important to keep in mind that salary growth rates are used to project a member's salary from the valuation date until their retirement. For newly hired members, this projection could be for 40 or more years. Therefore, the recent past should not be considered in isolation. Our recommended nominal salary growth rates for each duration are generally determined as the average of the real experience rates from the current period and the real rates based on current assumptions, plus the assumed inflation assumption.

In the pages at the end of this section, we have included graphs depicting the nominal and real growth rates for each employer category. The tables on which these graphs are based are included in the Appendix of this report. The rates illustrated represent the actual, expected, and proposed salary growth rates by duration of service. LASERS members have historically and continue to receive higher average salary growth rates toward the beginning of their careers and lower average salary increases later in their careers for all employer categories.

Rank and File –Current salary growth rates are 12.80% in the first year of service then decrease from 6.9% to 3.0% from one to 19 years and remain at 3.0% for all remaining years of service. Nominal actual salary increases were greater than expected for all durations of service. As shown in the following pages, the aggregate assumed salary increase was 4.90% but the aggregate actual salaries increased by 7.36%. With an average annual inflation of 3.90% over this period, the aggregate actual real wage increase was 3.46%, which compares to an aggregate assumed real wage increase of 2.60%. We propose increasing the assumed

salary growth rates to 13.95% for the first year of service and 7.53% decreasing to 3.26% from one to 19 years and remain at 3.26% for all remaining years of service, with an aggregate increase of 5.43%. This increases the aggregate assumed salary growth rate by 1.53% which includes the 0.10% increase in the inflation assumption and an additional 1.43% increase in the real wage increase.

Judges – Current salary growth rates decrease from 5.05% in the first year of service to 2.55% for all remaining years of service. The aggregate actual salary growth rate over the experience period was 2.81%, which compares to an aggregate assumed salary increase of 2.87%. We propose a slight increase in the assumptions from one to 19 years of service from 2.55% to 2.60% and a slight decrease from 2.55% to 2.40% for durations of service greater than 19. This reduces the aggregate assumed salary growth rate by 0.03% which includes the 0.10% increase in the inflation assumption and a decrease of 0.13% in the real wage increase.

Hazardous Duty – Current salary growth rates are 13.8% in the first year of service, then decrease from 7.8% to 3.55% from one to 15 years of service and remain at 3.55% all remaining years of service. Nominal actual salary growth rates were greater than expected for all durations of service, except for durations greater than 29 years of service. The aggregate actual increase was 9.52%, which compares to an aggregate assumed increase of 5.95%. With an average annual inflation of 3.90% over this period, the aggregate actual real wage increase was 5.62%. We propose increasing the assumed salary growth rates to 15.29% in the first year and 9.30% decreasing to 4.44% from one to 15 years and 4.44% for all remaining years of service, with an aggregate assumed salary growth rate of 7.04%. This increases the aggregate assumed salary growth rate by 1.09% which includes the 0.10% increase in the inflation assumption and an additional 0.99% increase in the real wage increase.

Actual Salary Increase Experience (Aggregate)							
	Actual Inflation	Rank and File		Judges		Haz Plans	
		Real	Nominal	Real	Nominal	Real	Nominal
2005-2008 Experience	4.00%	2.41%	6.41%	-0.49%	3.51%	3.76%	7.76%
2008-2013 Experience	1.31%	3.40%	4.71%	1.96%	3.27%	2.04%	3.35%
2013-2018 Experience	1.54%	3.12%	4.66%	1.14%	2.68%	3.73%	5.27%
2018-2023 Experience	3.90%	3.46%	7.36%	-1.09%	2.81%	5.62%	9.52%

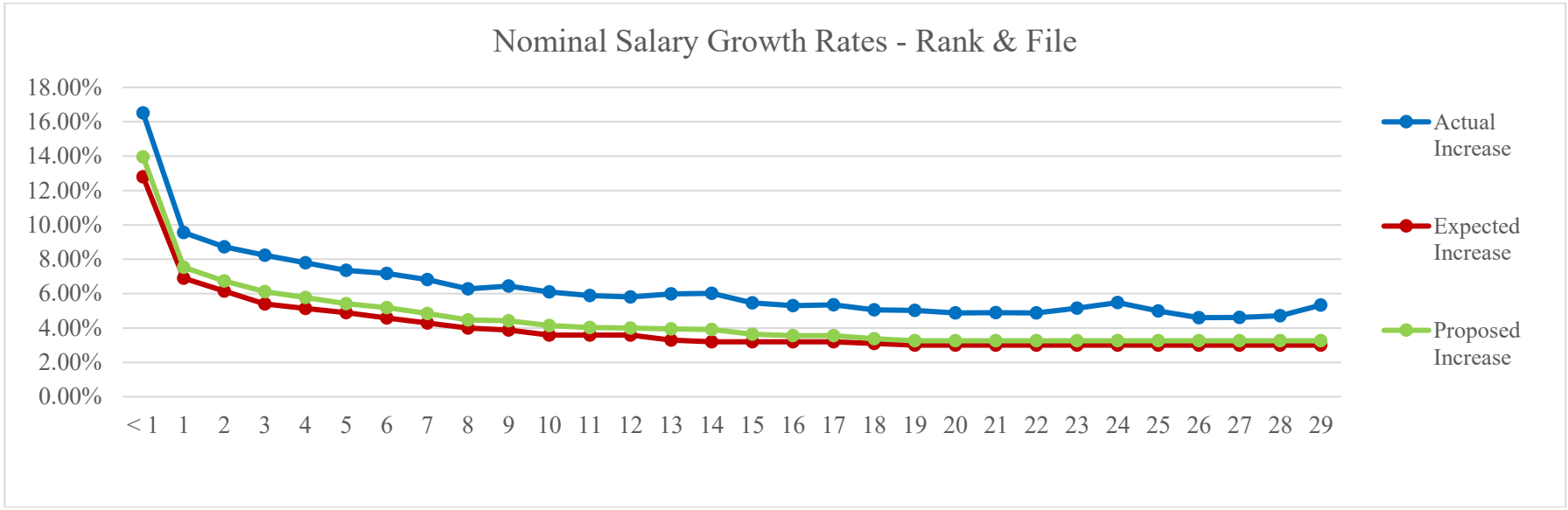
Salary Increase Assumptions – Current and Proposed							
	Assumed Inflation	Rank and File		Judges		Haz Plans	
		Real	Nominal	Real	Nominal	Real	Nominal
Current Aggregate Assumed Annual Increase	2.30%	2.60%	4.90%	0.57%	2.87%	3.65%	5.95%
Proposed Aggregate Assumed Annual Increase	2.40%	3.03%	5.43%	0.44%	2.84%	4.64%	7.04%

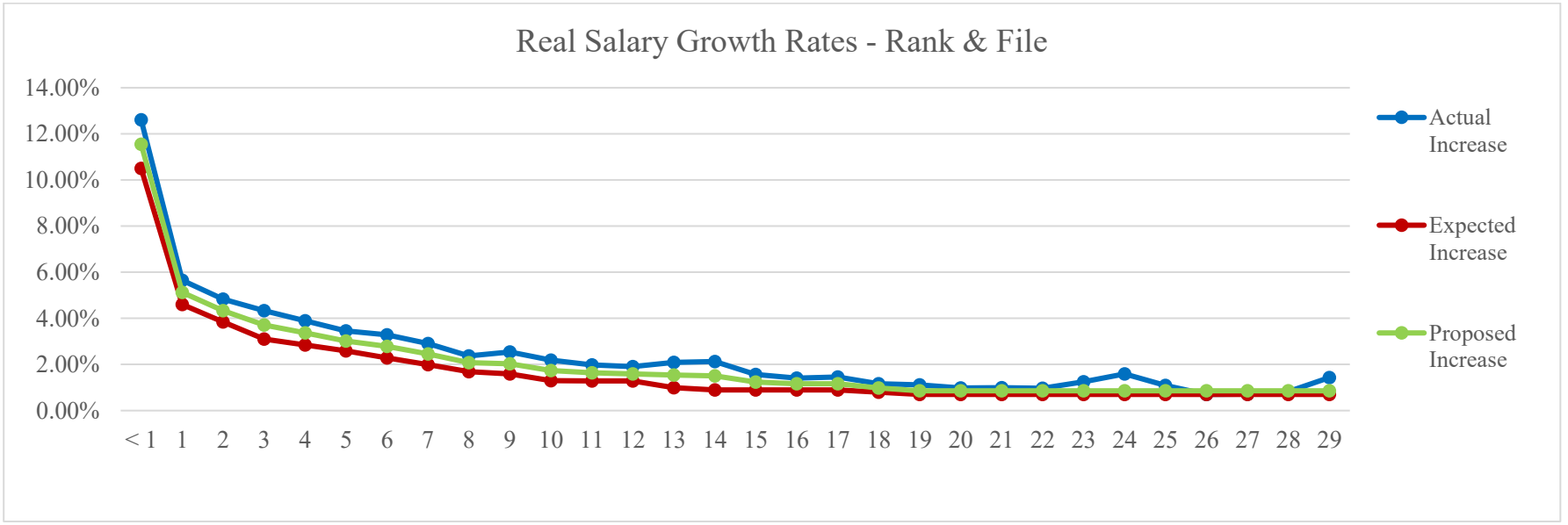
Impact on Valuation Results

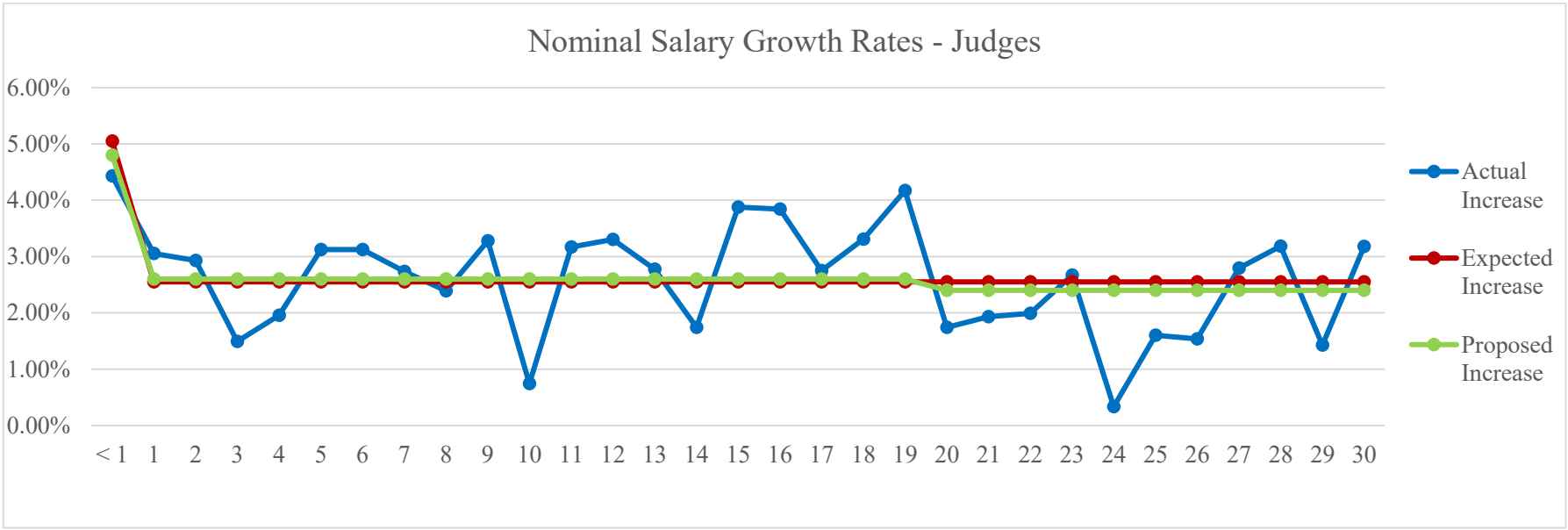
The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

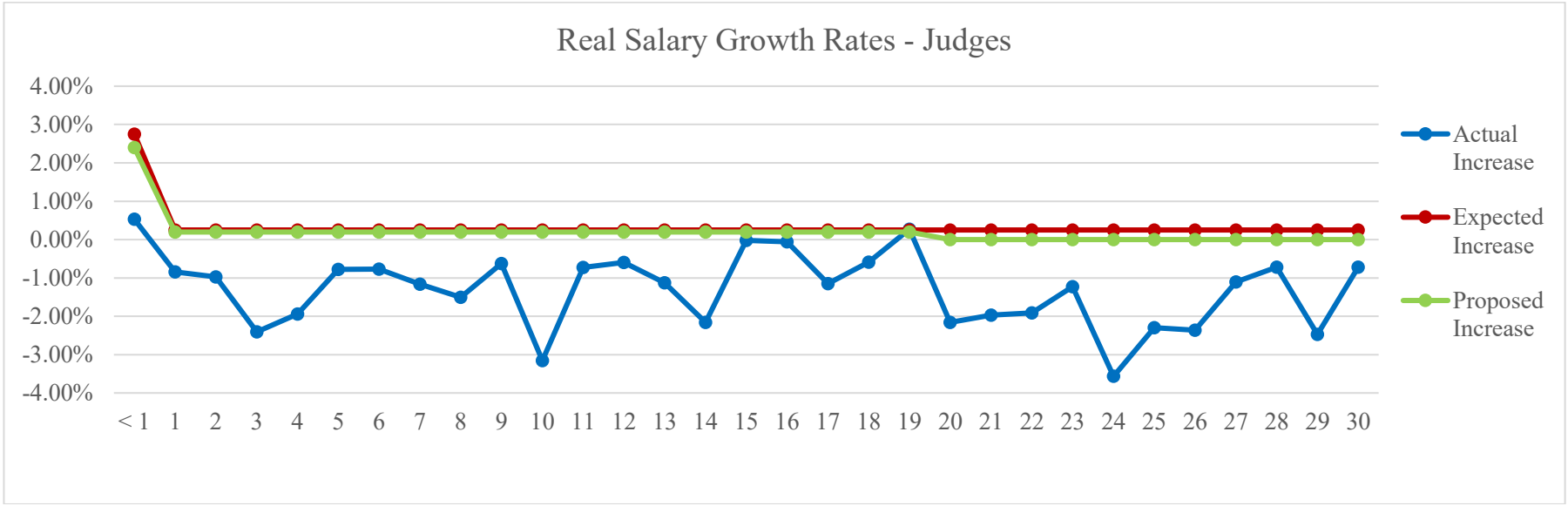
	Change in Accrued Liability	Change in Normal Cost
Rank and File	37,242,772	8,116,636
Judges	(416,078)	14,947
Hazardous Duty Plans	29,656,936	4,339,831
TOTAL	66,483,630	12,471,414

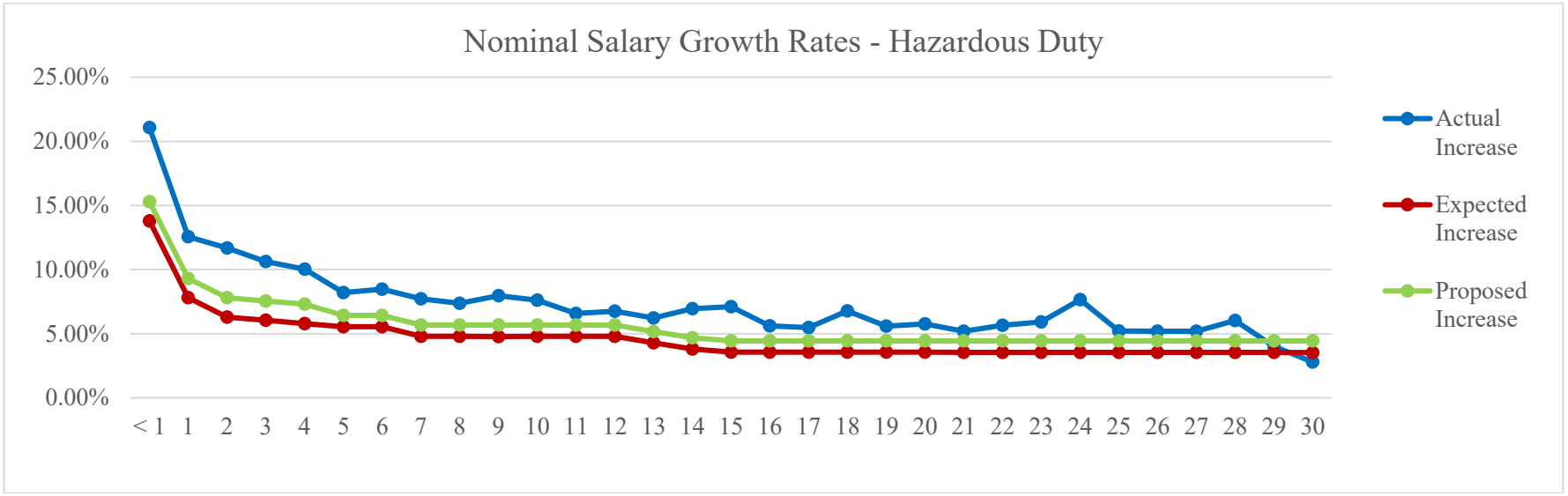
The graphs presented below provide a visual representation of the actual and proposed salary increase rates compared to the current assumptions. The tables on which the graphs are based, which include the prior year, actual and expected salaries, can be found in the Appendix.

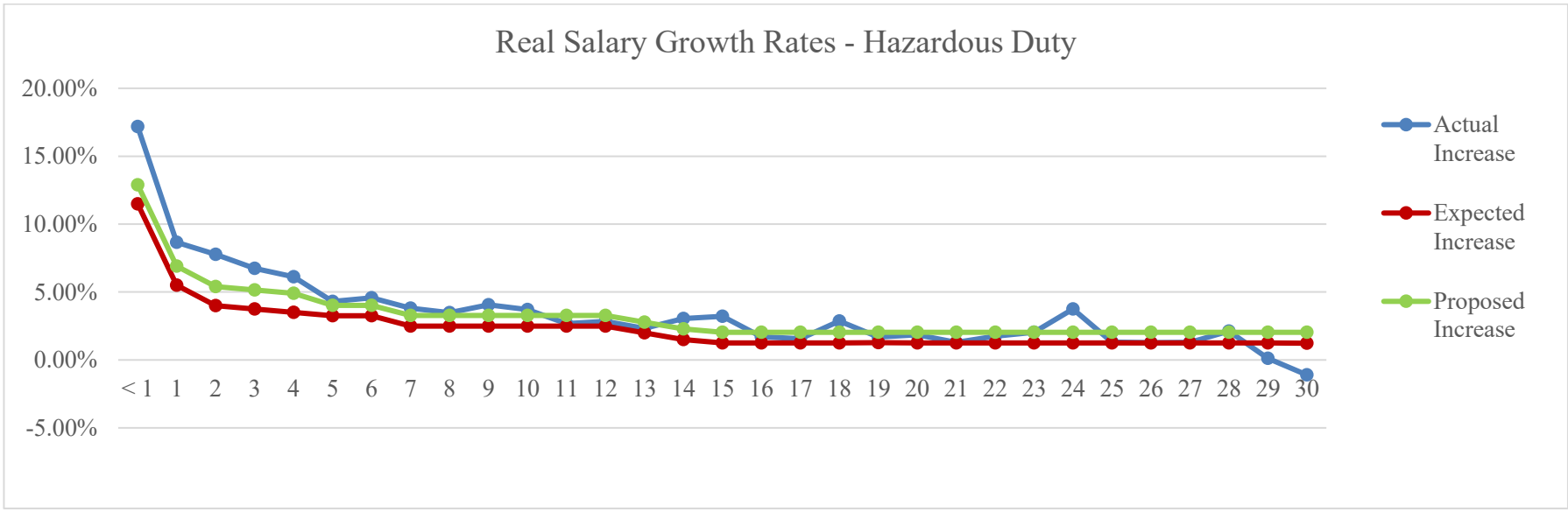

Nominal Salary Growth Rates - Rank & File
18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
Actual Increase
Expected Increase
Proposed Increase


Real Salary Growth Rates - Rank & File
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
Actual Increase
Expected Increase
Proposed Increase


Nominal Salary Growth Rates - Judges
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Actual Increase
Expected Increase
Proposed Increase


Real Salary Growth Rates - Judges
4.00%
3.00%
2.00%
1.00%
0.00%
-1.00%
-2.00%
-3.00%
-4.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Actual Increase
Expected Increase
Proposed Increase


Nominal Salary Growth Rates - Hazardous Duty
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Actual Increase
Expected Increase
Proposed Increase


Real Salary Growth Rates - Hazardous Duty
20.00%
15.00%
10.00%
5.00%
0.00%
-5.00%
< 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Actual Increase
Expected Increase
Proposed Increase

DEMOGRAPHIC ASSUMPTIONS

OVERVIEW

ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries in selecting (including giving advice on selecting) demographic and other noneconomic assumptions for measuring obligations under defined benefit pension plans.

Over the following pages, the following demographic assumptions will be reviewed:

- Retirement Rates
- Withdrawal/Termination Rates
- Mortality Rates
- Disability Incidence Rates

Generally, demographic assumptions are based on actual plan experience with additional considerations for current trends. ASOP No. 35 states "the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment." ASOP No. 35 also states that "a reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses…the actuary should not give undue weight to past experience when selecting demographic assumptions."

Demographic assumptions generally remain consistent over time, absent significant changes in plan provisions or economic conditions. Therefore, the best true indicator of future experience is often past experience. For each assumption, the study compares actual experience for that time period to assumptions used in the valuations.

Note that actuarial assumptions reflect average experience over long periods of time. A change in actuarial assumptions generally results when experience over a period of years indicates a consistent pattern. Proposed changes to the demographic assumptions are made to better reflect actual plan experience over the studied time period. The proposed changes also meet the objective of developing costs that are stable, predictable, and represent our best estimate of anticipated future experience.

RETIREMENT RATES

Retirement rates represent the probability that a member will retire or enter DROP at a given age and/or service, if they have attained the eligibility requirements. Higher rates of retirement at earlier ages generally result in higher costs to the plan but may be offset by the impacts of actuarially equivalent early retirement reductions.

For all plans except Corrections Secondary, Wildlife hired after 7/1/2023 and Harbor Police, members are eligible for an actuarially reduced benefit with 20 years of service. The current normal retirement eligibility requirements are as follows:

Regular Members:

- Hired prior to 7/1/2006
  - Age 55 and 25 years of service, or
  - Age 60 and 10 years of service, or
  - 30 years of service
- Hired on or after 7/1/2006 and before 7/1/2015
  - Age 60 and 5 years of service
- Hired on or after 7/1/2015
  - Age 62 and 5 years of service

Judicial Members:

- Hired prior to 1/1/2011
  - Age 65 and 10 years of service as a judge or court officer, or
  - Age 55 and 12 years of service as a judge or court officer, or
  - Any age and 18 years of service as a judge or court officer, or
  - Age 50 and 20 years of service, with 12 years of service as a judge or court officer, or
  - Age 70 and any years of service as a judge or court officer
- Hired on or after 1/1/2011 and before 7/1/2015
  - Age 60 and 5 years of service
- Hired on or after 7/1/2015
  - Age 62 and 5 years of service

Corrections/Hazardous Duty:

The majority of members in the various Hazardous Duty-type plans are in the Corrections Secondary Plan or the Hazardous Duty Plan

- Corrections Secondary
  - Age 60 and 10 years of service, or
  - 25 years of service
- Hazardous Duty
  - Age 55 and 12 years of service, or
  - 25 years of service

Experience and Proposed Assumptions

The charts in the Appendix and graphs at the end of this section illustrate the actual retirement experience over the last five years. The rates are unisex and represent the probability of retirement, given the member had met the eligibility requirements. If the member did not meet the eligibility requirements at a given age,

the member's exposure was excluded for that age. Note, we combined the experience by service category for some age groups to maintain consistent assumptions across service categories where retirement patterns seemed likely to be consistent. This results in aggregate proposed rates that differ from the aggregate experience but results in overall more stable and reasonable assumptions.

Rank and File: Current assumptions are age-based tables with separate tables for years of service as shown in the table below. We recommend retaining the current age/service structure. Actual retirement rates were less than expected in the aggregate for each service category. We recommend changes to the retirement/DROP rates to more closely mirror recent experience.

Service	Eligible Members	Actual Retirements	Expected Retirements	Actual Retirement Rates*	Expected Retirement Rates*	Proposed Retirement Rates*
<10	2,423	301	513.7	12.4%	21.2%	16.3%
10-19	8,287	1,342	1,767.4	16.2%	21.3%	21.0%
20-24	17,612	1,491	2,379.5	8.5%	13.5%	10.1%
25-29	10,939	1,863	1,985.0	17.0%	18.1%	17.9%
30+	8,193	1,931	2,004.1	23.6%	24.5%	24.7%
Total	**47,454**	**6,928**	**8,649.7**	**14.6%**	**18.2%**	**16.7%**

Judges: Current assumptions are age-based tables with separate tables for years of services as shown in the table below. Actual retirement rates were less than expected in the aggregate for each service category. We recommend changes to the retirement/DROP rates to more closely mirror recent experience.

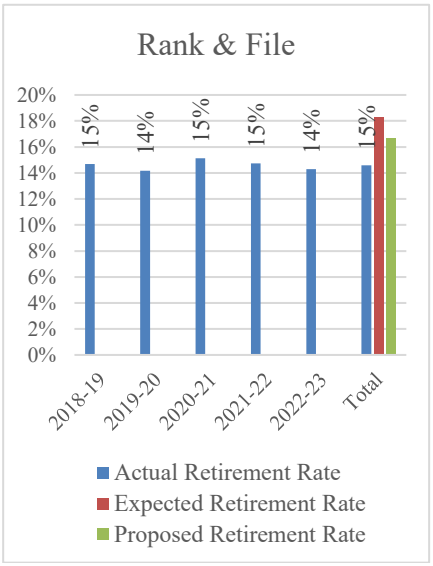
Service	Eligible Members	Actual Retirements	Expected Retirements	Actual Retirement Rates*	Expected Retirement Rates*	Proposed Retirement Rates*
<12	114	7	12.4	6.1%	10.9%	7.1%
12-17	235	19	24.4	8.1%	10.4%	9.0%
18+	863	114	154.0	13.2%	17.8%	16.3%
Total	**1,212**	**140**	**190.8**	**11.6%**	**15.7%**	**14.0%**

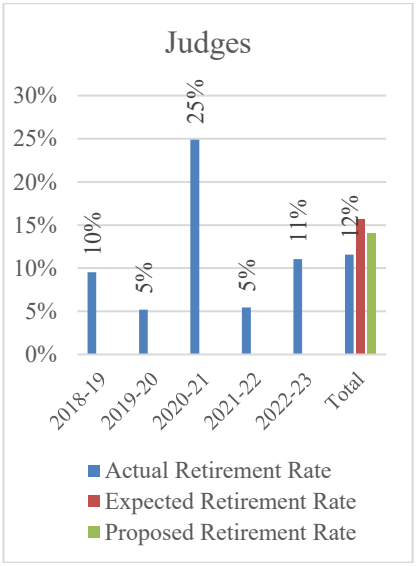
Hazardous Duty: Current assumptions are age-based tables with separate tables for members with less than 10 years of service and 10 or more years of service. We recommend revising the service categories to be less than 20 years of service and 20 or more years of service to be more reflective of the retirement eligibility requirements for the hazardous duty plans. Aggregate retirement rates were less than expected for members with less than 20 years of service, but greater than expected for members with 20 or more years of service. Our recommended retirement rates were developed to mirror current experience more closely.

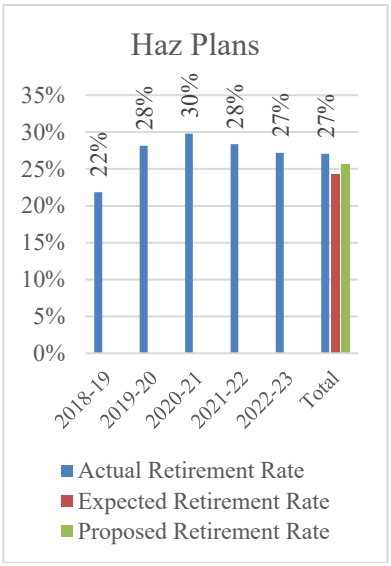
Service	Eligible Members	Actual Retirements	Expected Retirements	Actual Retirement Rates*	Expected Retirement Rates*	Proposed Retirement Rates*
<20	555	114	139.9	20.5%	25.2%	24.0%
20+	1,768	515	424.7	29.1%	24.0%	26.1%
Total	**2,323**	**629**	**564.6**	**27.1%**	**24.3%**	**25.6%**

* Rates shown in tables above are in aggregate for the membership during the experience period. See the tables included in the Appendix for experience rates by plan, duration, and age.

COVID Impact: We reviewed the experience by year within the experience period for the Rank and File, Judges, and Hazardous Duty plans. For Rank and File, there was no significant difference between the COVID years and the other years in the experience period. For Judges, experience for FYE 2021 was unusually high but when averaged for the three-year period ending FYE 2021 resulted in the typical pattern of retirements, indicating there was a shift in the timing but not the number of retirements during this period. For the Hazardous Duty plans, the actual retirement rate for fiscal year 2020-2021 was slightly higher than the other years but not to an extent that warranted removing this year from the experience. The bar graphs below show the aggregate experience by fiscal year relative to the aggregate actual and expected retirement rates for Rank and File, Judges, and Hazardous Duty plans.





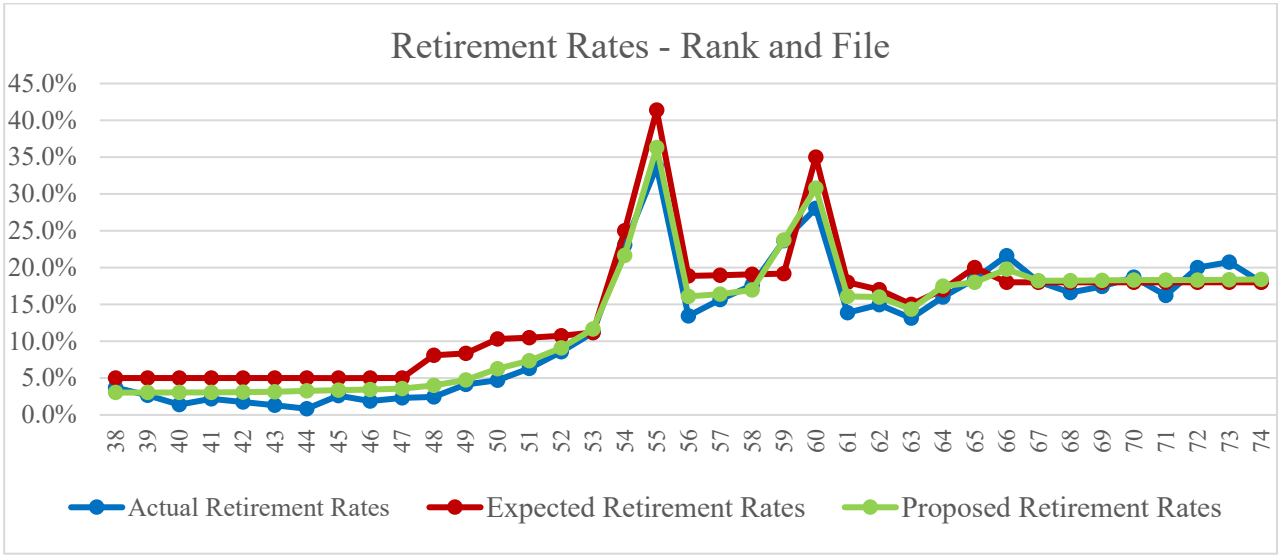


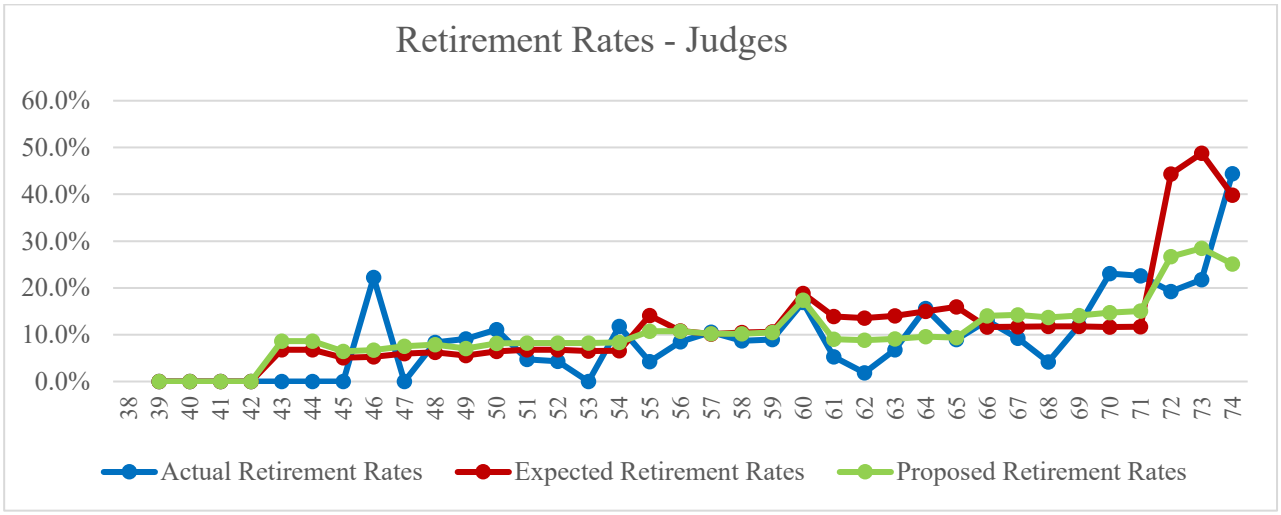
Impact on Valuation Results

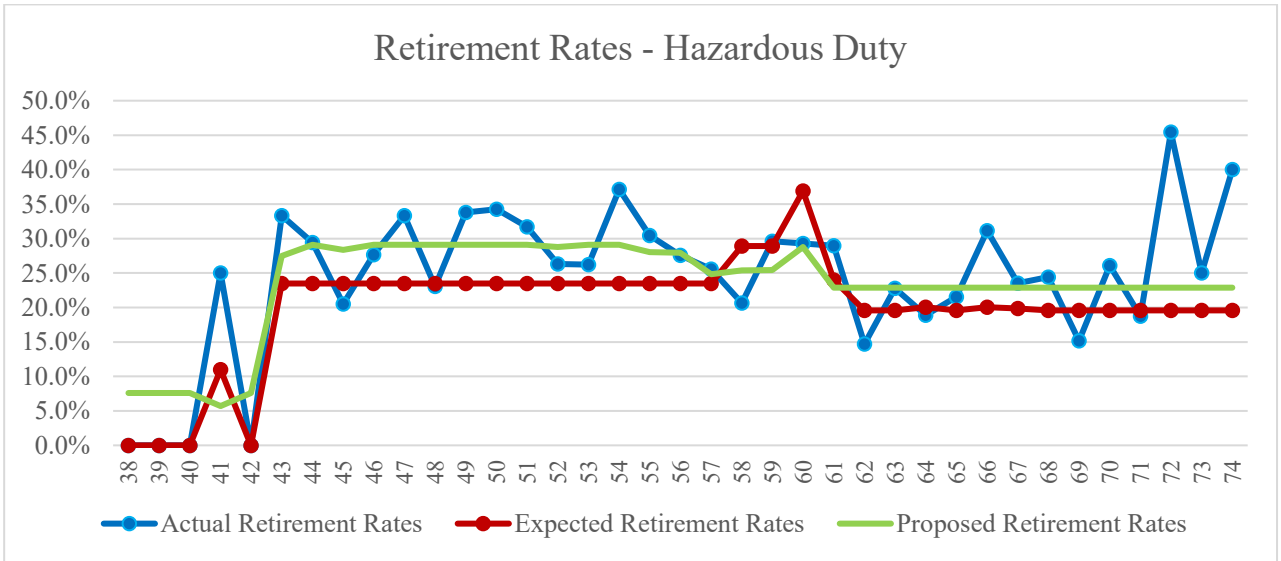
The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

	Change in Accrued Liability	Change in Normal Cost
Rank and File	51,582,684	1,751,469
Judges	(4,314,887)	(415,891)
Hazardous Duty Plans	10,265,554	229,004
TOTAL	57,533,351	1,564,582

The graphs presented below provide a visual representation of the actual and proposed retirement rates compared to the current assumptions. The tables on which the graphs are based, which include the exposure, can be found in the Appendix.


Retirement Rates - Rank and File
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
Actual Retirement Rates
Expected Retirement Rates
Proposed Retirement Rates


Retirement Rates - Judges
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
Actual Retirement Rates
Expected Retirement Rates
Proposed Retirement Rates


Retirement Rates - Hazardous Duty
50.0%
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
Actual Retirement Rates
Expected Retirement Rates
Proposed Retirement Rates

WITHDRAWAL/TERMINATION RATES

The withdrawal rate, or sometimes referred to as the termination rate, is the probability that a member will separate employment from a cause other than disability, death, or retirement.

Experience and Proposed Assumptions

All active members during the observation period were included in the exposure unless the member had met the retirement eligibility requirements. If a member was eligible for retirement at a given age, the member's exposure was excluded for that age.

Rank and File – Current assumptions vary based on the age of the member and the six distinct levels of service shown in the table below. Actual withdrawal experience was less than expected for every service category, therefore we are recommending decreasing the assumed withdrawal rates for nearly all ages in each service category. See the tables in the Appendix for the experience and assumptions by age and service. The aggregate withdrawal rate for all age and service levels was 12.1% compared to an expected rate of 13.9%. Our proposed rates within each service category were chosen generally as the midpoint between actual and expected rates. This provides a closer fit to actual experience while still recognizing the current assumptions.

Service	Eligible Members	Actual Term	Expected Term	Actual Termination Rate*	Expected Termination Rate*	Proposed Termination Rate*
<1	16,823	4,963	5,009.5	29.5%	29.8%	29.6%
1	13,773	2,743	3,038.7	19.9%	22.1%	21.0%
2,3	20,944	3,006	3,335.9	14.4%	15.9%	15.1%
4-6	20,009	1,961	2,516.0	9.8%	12.6%	11.2%
7-9	12,501	790	975.1	6.3%	7.8%	7.1%
10+	37,247	1,248	1,961.6	3.4%	5.3%	4.3%
Total	**121,297**	**14,711**	**16,836.7**	**12.1%**	**13.9%**	**13.0%**

Judges – Current assumptions vary by years of service and are based on prior experience. With only 14 withdrawals in five years, there is minimal experience on which to base our recommendations. We assumed an aggregate withdrawal rate of 1.2%. The plan experienced an aggregate withdrawal rate of 1.6% over the experience period. Therefore, we recommend reducing the withdrawal assumption to 1.4% for all durations of service.

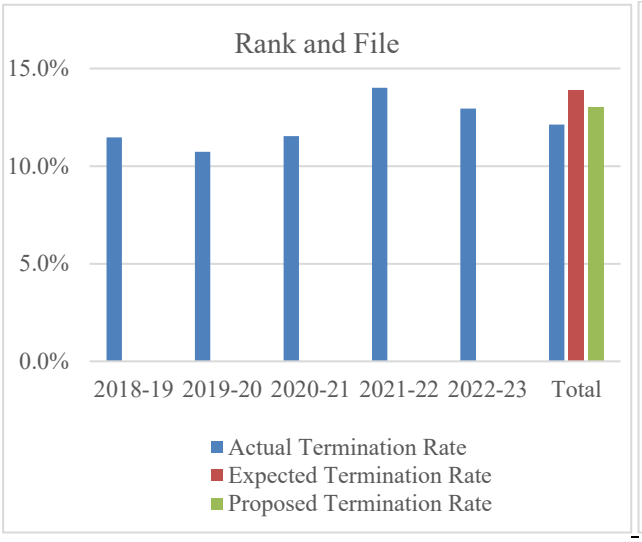
Hazardous Duty (Excl. Wildlife) – The Hazardous Duty analysis excluded Wildlife experience, which was analyzed separately since this group continues to exhibit a pattern of withdrawals that differs from the other Hazardous Duty plans. Current assumptions vary based on the member's duration of service and attained age. We recommend retaining the current service categories and adjusting the assumed withdrawal rates by age within these categories. The table below shows the comparison of the aggregate actual and expected termination rates for each service category and our aggregate proposed rate. Note the total aggregate actual withdrawal rate of 16.9% was very close to the aggregate expected withdrawal rate of 17.2%. Our proposed rates within each service category were chosen generally as the midpoint between actual and expected rates. This provides a closer fit to actual experience while still recognizing current assumptions.

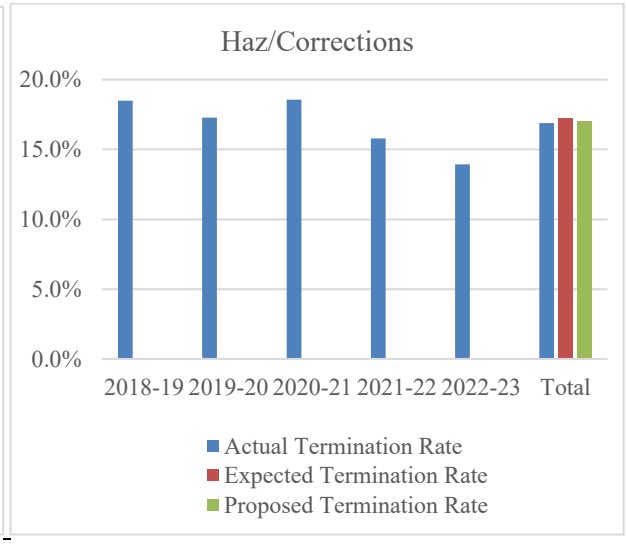
Service	Eligible Members	Actual Term	Expected Term	Actual Termination Rate *	Expected Termination Rate*	Proposed Termination Rate*
<1	3,684	1642	1,629.0	44.6%	44.2%	44.4%
1	2,311	573	611.4	24.8%	26.5%	25.6%
2	1,743	308	356.7	17.7%	20.5%	19.1%
3-4	2,625	349	442.8	13.3%	16.9%	15.1%
5-7	2,465	231	254.6	9.4%	10.3%	9.8%
8-9	1,060	77	67.8	7.3%	6.4%	6.8%
10+	6,764	306	189.4	4.5%	2.8%	3.6%
Total	**20,652**	**3,486**	**3,551.7**	**16.9%**	**17.2%**	**17.0%**

* Rates shown above are in aggregate for the membership during the experience period. See the tables included in the Appendix for experience rates by plan, duration, and age.

Wildlife – Current assumptions vary by years of service. We currently assume a 7.6% withdrawal rate for members with less than six years of service and a rate of 0.5% for members with six or more years of service. With only eight withdrawals in five years, there is minimal experience on which to base our recommendations. The actual aggregate withdrawal rate over the experience period was 1.82%. This compared to an aggregate expected withdrawal rate of 1.8%. All members currently have thirteen or more years of service and the plan is closed to new entrants. We recommend eliminating the service component of this assumption and assuming a flat withdrawal rate of 1.8%.

COVID Impact: We reviewed the experience by year within the experience period for the Rank and file and Hazardous Duty plans. For both groups, there was an increase in withdrawals but the increase was noted in 2021-22 for the rank and file plans and 2020-21 for the hazardous duty plans. Also, similar increases were observed either before COVID or continued after COVID resulting in our conclusion to retain all five years in the study period. The bar graphs below show the aggregate actual and expected experience by fiscal year and the proposed withdrawal rates for Rank and File and Hazardous Duty plans.



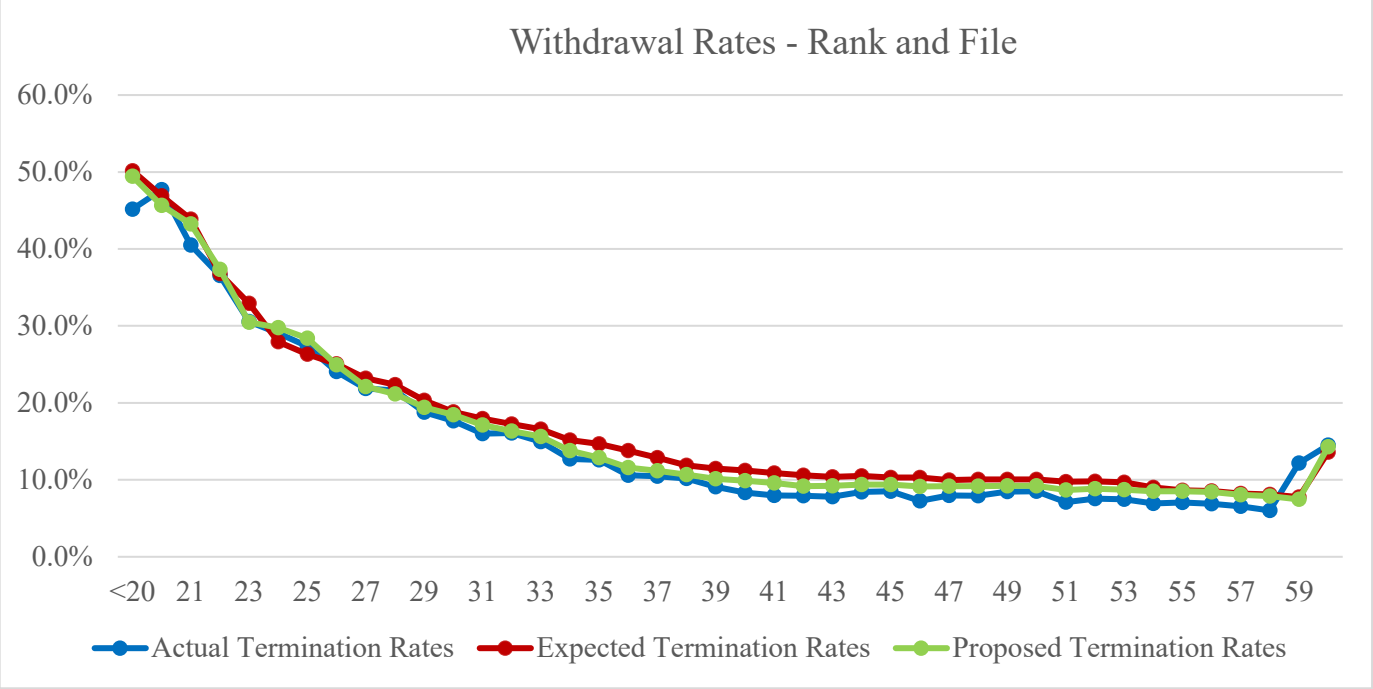


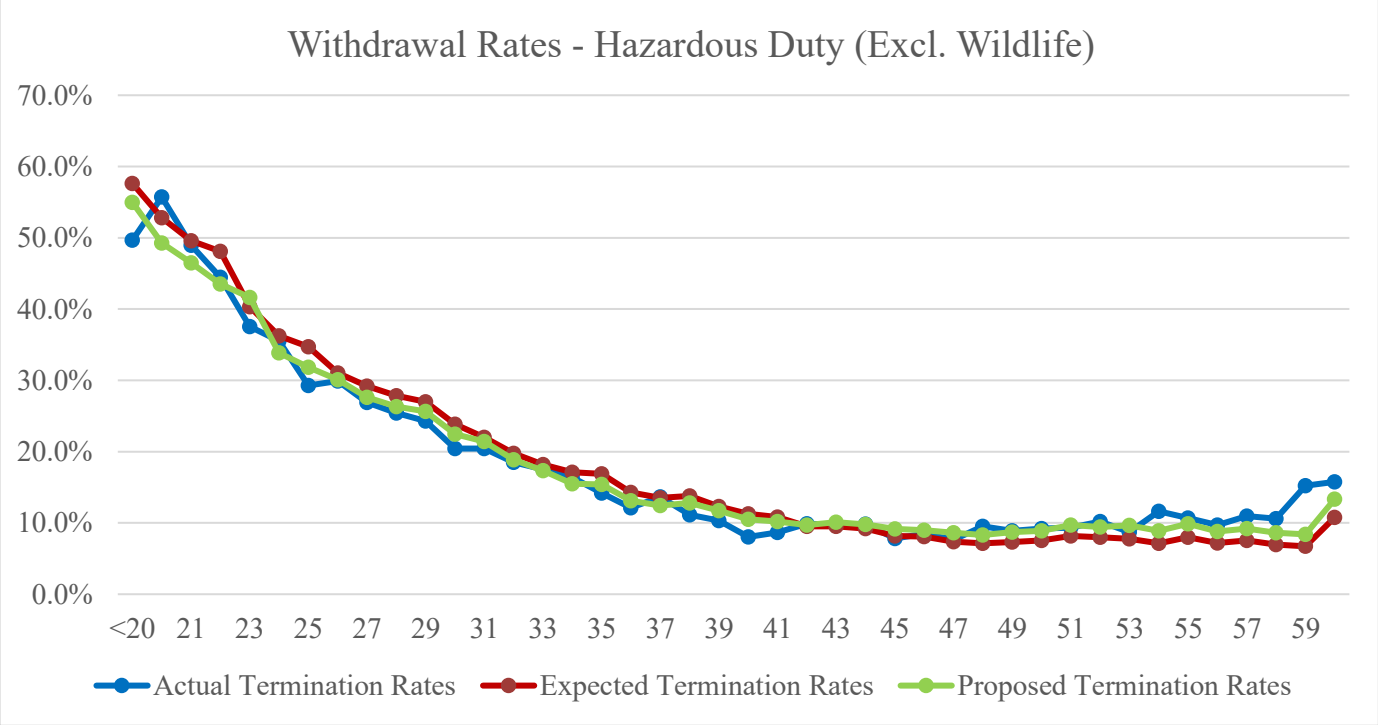
Impact on Valuation Results

The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

	Change in Accrued Liability	Change in Normal Cost
Rank and File	(2,669,256)	6,133,417
Judges	122,171	(41,985)
Hazardous Duty Plans	(18,179,417)	(470,909)
TOTAL	(20,726,502)	5,620,523

The graphs presented below provide a visual representation of the actual and proposed withdrawal rates compared to the current assumptions. The tables on which the graphs are based, which include the exposure, can be found in the Appendix.


Withdrawal Rates - Rank and File
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
<20 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59
Actual Termination Rates
Expected Termination Rates
Proposed Termination Rates


Withdrawal Rates - Hazardous Duty (Excl. Wildlife)
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
<20 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59
Actual Termination Rates
Expected Termination Rates
Proposed Termination Rates

MORTALITY RATES

LASERS normal cost and actuarial accrued liabilities depend in part on how long retirees will live. If retirees live longer than anticipated by the assumptions, benefits will be paid longer than expected and experience losses will develop. If retirees do not live as long as anticipated by the assumptions, experience gains will develop. Mortality rates represent the probability of death at a given age. The choice of mortality rates impacts normal costs and liabilities and has the greatest impact on the liabilities for retirees.

Mortality rates have generally declined over time as advances in medical care have evolved. The extent of future mortality improvement will impact the magnitude of pension costs and liabilities for future benefit commitments. LASERS currently accounts for projected mortality improvement using generational mortality tables, where future improvements in mortality are anticipated by using mortality tables for each year of birth, with the tables for later years of birth assuming lower mortality than the tables of earlier years of birth.

Mortality tables can be prepared using a headcount or amount-weighted approach. Current assumptions are based on headcount-weighted tables. For pension obligations, tables weighted by amount generally produce the most appropriate results. We analyzed the mortality experience using an amounts-weighted approach, in which the exposure and actual occurrences are multiplied by the member's salary or benefit to provide amount-weighted experience.

Our analysis employs a credibility procedure which uses a statistical approach to combine actual mortality experience with standard mortality tables to improve the estimate of future mortality.

Current Assumptions

The current mortality assumptions are as follows:

General Active Employees
- Males: RP-2014 Blue Collar Employee *0.978
- Females: RP-2014 Blue Collar Employee * 1.144

Public Safety Active Employees
- Males: RP-2014 Blue Collar Employee *1.005
- Females: RP-2014 Blue Collar Employee * 1.129

General Retiree/Inactive Employees
- Males: RP-2014 Blue Collar Annuitant * 1.280
- Females: RP-2014 White Collar Annuitant * 1.417

Public Safety Retiree/Inactive Employees
- Males: RP-2014 Blue Collar Annuitant *1.185
- Females: RP-2014 Blue Collar Annuitant * 1.017

Disability Retirees
- Males: RP-2000 Disability Retiree * 1.009
- Females: RP-2000 Disability Retiree * 1.043

Mortality assumptions for actively employed members and regular retirees include adjustments for expected future mortality improvement using the MP-2018 Generational Improvement Scale. Mortality assumptions for Disability Retirees include no adjustments for expected future mortality improvement.

Standard Mortality Tables

In October 2014, the Society of Actuaries (SOA) released the RP-2014 Mortality Tables, which are based on private pension plan experience but are widely used by public pension plans, as they contained the most recent standard mortality tables available. In January 2015, the SOA initiated a study of public pension plans mortality experience. LASERS participated in this study by providing data. The published tables provide gender-specific mortality tables for Employees and Retirees by employer category (General Employees, Public Safety, Teachers), Disabled Retiree Tables (Non-Safety and Safety), and Contingent Survivor Tables (all employer categories combined). These tables are collectively named the Pub-2010 Mortality Tables and were released in January 2019.

For a plan to develop a mortality table based solely on its own experience it must have hundreds of thousands of lives and thousands of deaths at each age and gender. However, many plans provide enough fully credible experience to develop a custom mortality table by multiplying the mortality rates in a published table by the ratio of actual to expected deaths. We employed this methodology by first identifying a standard table with mortality rates similar to those of the actual plan membership. Since the rate at each age in the custom mortality table will be a multiple of the rate at that age from the standard table, close attention was given to the shape of the standard table in making the selection.

Once the appropriate standard table was selected, we determined the multiple using the limited fluctuation approach to credibility, as described in the Society of Actuaries Credibility Educational Resource for Pension Actuaries, issued in August 2017. Using this approach, approximately 1,082 deaths are needed to provide full credibility based on a 90% confidence level and a 5% margin of error. And 1,537 deaths are needed to provide full credibility based on a 95% confidence level. If the experience data is fully credible, then the rates from the standard table are multiplied by the ratio of the actual to expected deaths from the standard table. Where there are fewer than the deaths needed for full credibility, the limited fluctuations approach allows some of the plan's actual experience to be used to adjust the standard table.

Experience and Recommended Assumptions

In preparing this study, we compared mortality experience over the study period to the current assumption tables. We considered each standard table both with and without projection to 2020 (the central year of the experience study) using improvement scale MP-2021, unless otherwise noted below. Experience was reviewed separately by gender, by general employees and public safety employees and for active members, regular retirees, and disabled retirees. For contingent survivors, the experience was reviewed in total for all survivors and separated only by males and females.

We considered the impact of the COVID-19 pandemic by reviewing the retiree mortality experience for each year during the study period in order to determine if it would be prudent to eliminate the COVID-19 years from the experience. We found that COVID-19 appears to have had a relatively small impact on mortality rates, particularly for females, which makes up the majority of the retirees. These results are included in the Appendix. . Also, COVID is likely to remain as an endemic disease contributing to additional deaths, although to a lesser extent than initially observed. For these reasons, we included the full experience period in our analysis.

Below we present our findings and our recommended mortality assumptions. Graphs showing current actual experience relative to current and proposed assumptions are included in the Appendix of this report.

Active Employee Mortality:

Since mortality rates are significantly lower for active members than for retirees, mortality rates for active members are much less significant to the valuation. The low number of actual active member deaths

results in an insufficient number of deaths needed to provide fully credible experience on which to develop LASERS' mortality rates. The number of deaths and resulting credibility factors are shown below:

Active Employees	# Deaths	Credibility Factor	A/E
General – Male	144	26.2%	0.653
General – Female	126	25.3%	0.678
Public Safety – Male	29	12.8%	0.930
Public Safety – Female	7	6.4%	0.521

For general employees (non-public safety) our review of experience during the study period found that males and females experienced fewer deaths than anticipated by the currently used RP-2014 Blue Collar mortality tables. The Pub2010G tables provided a better fit to current experience. For all tables considered we used the limited fluctuation approach to credibility analysis described above to determine the appropriate adjustment factor for each table. We then chose the table with the best fit to actual experience. Based on this analysis, we recommend using the Pub2010G Employee tables for males and females, with the rates adjusted by factors of 1.055 for males and by 1.034 for females.

For public safety employees, we found that the Pub2010S (Below Median) Employee tables provided a better fit than the current RP2014 Blue Collar Employee mortality tables. We recommend using Pub2010S (Below Median) Employee tables for males and females, with the rates at each age adjusted by factors of 1.050 for males and by 0.974 for females.

Retirees/Inactive Mortality:

Mortality rates for retirees are much more significant to the valuation since mortality rates are significantly higher for retirees. We evaluated the mortality experience separately for General and Public Safety retirees. For General retirees, we found that the actual benefits for deaths were less than the expected benefits by about 13% for males and about 4% for females. For Public Safety retirees, we found that the actual benefits for male deaths were approximately 2% less than expected based on current assumptions, and that the actual benefits for female deaths were approximately 10% greater than expected based on current assumptions.

Retirees	# Deaths	Credibility Factor	A/E
General - Male	2,748	100.0%	0.867
General - Female	3,704	100.0%	0.962
Public Safety - Male	236	34.4%	0.981
Public Safety - Female	51	16.0%	1.097

Using the credibility approach described above, we found that LASERS general retiree mortality experience was 100% credible for both males and females. However, the number of deaths by age category was not fully credible so the limited fluctuation approach requires the use of a standard table with a multiple to adjust the table to reflect plan specific experience.

For General Employee mortality, we considered the RP-2014 Blue Collar (White Collar for females) and the Pub2010G Healthy Retiree tables for males and females. After adjusting the standard tables with the multiple determined using the credibility method described above, the Pub2010G Healthy Retiree tables provided the closest overall fit to actual plan experience, although marginally for females. Therefore, we recommend the Pub2010G Healthy Retiree tables for non-disabled male retirees and inactive members with the rates at each age adjusted by a factor of 1.215 for males and 1.277 for females.

For the Public Safety Retiree mortality, we considered the RP-2014 Blue Collar and the Pub2010S Healthy Retiree (Below Median) tables for males and females. We found that the Pub2010S tables provided the closest fit to actual experience for males. The RP 2014 BC table provided the best fit for females, but only marginally better than the Pub2010S tables. With more males in the Public Safety plans, we preferred to keep using the same set of base tables. Therefore, we recommend the Pub2010S Healthy Retiree (Below Median) tables for non-disabled public safety retirees and inactive members with the rates at each age adjusted by a factor of 1.049 for males and 1.020 for females.

Disabled Retirees:

Mortality rates for disabled retirees are generally higher than for regular retirees. For Disabled Retirees, the RP-2000 Disabled Retiree Mortality Table with no projection for mortality improvement is currently used for all plans. We reviewed the disability experience separately for General and Public Safety retirees and compared each to the current rates and to the Pub2010 Disability retirement rates for General and Public Safety Retirees. We found that the current table provided a far superior fit than the RP-2014 Disability mortality table or the Pub2010 Disability mortality tables. Based on our analysis, we recommend retaining the current base table for general disability retirees but adjusting the male rates by a factor of 0.936 and the female rates by a factor of 1.065. For the Pubic Safely disability retirees, we recommend retaining the current base table but adjusting the male rates by a factor of 0.978 and the female rates by a factor of 1.002

Disabled Retirees	# Deaths	Credibility Factor	A/E
General - Male	168	27.3%	0.758
General - Female	333	39.9%	1.114
Public Safety - Male	17	9.5%	0.758
Public Safety - Female	7	6.3%	0.996

Beneficiaries/Survivors:

Previously, we used the inactive mortality assumptions to value liabilities of beneficiaries and survivors. The Pub2010 set of tables includes tables specific to public plan beneficiaries and survivors. The tables are known as the Pub2010 Contingent Survivor tables. We analyzed beneficiary/survivor experience in combination for general and public safety members. The credibility factor for males and females are provided in the table below. We compared actual experience to the RP2014 Blue Collar (White Collar for female non-public safety beneficiaries) and the Pub 2010 Contingent Survivor standard tables, both with and without projection to 2020. We found that the Pub 2010 Contingent Survivor tables provided the closest fit to actual experience. Based on our analysis, we recommend adjusting the male rates by a factor of 1.264 and the female rates by a factor of 1.326.

Beneficiaries/Survivors	# Deaths	Credibility Factor	A/E
Male	313	36.4%	1.495
Female	1,559	80.5%	1.141

Future Mortality Improvement:

Currently, the mortality tables reflect generational improvements using the MP-2018 improvement scale, which was the most current table released by the Society of Actuaries (SOA) Research Institute's Retirement Plan Experience Committee (RPEC) at the time of the last experience study. The RPEC has continued to update these tables annually through 2021. The MP-2021 scale reflects historical U.S. population mortality experience through 2019. Due to complications related to the impact of the COVID-19 pandemic, the RPEC has elected not to update the MP-2021 scale, so it remains the most currently available standard table. We recommend updating the mortality improvement assumptions to be based on the MP-2021 improvement scale.

For disabled retirees, we are recommend retaining no future mortality improvement assumptions, instead, using a static table since there does not appear to have been any improvement since the RP-2000 tables were developed.

Summary of Recommended Mortality Assumptions

Our recommended mortality assumptions are summarized below. Note all tables are amount-weighted, with base year of 2020 (i.e., 2010 base rates used as 2020 rates).

Active Employees

General	PubG-2010 Male Employee *1.055
	PubG-2010 Female Employee * 1.034
Public Safety	PubS-2010 (Below-Median) Male Employee *1.050
	PubS-2010 (Below-Median) Female Employee * 0.974

Retiree/Inactive Employees

General	PubG-2010 Male Retiree *1.215
	PubG- 2010 Female Retiree * 1.277
Public Safety	PubS-2010 (Below-Median) Male Retiree *1.049
	PubS-2010 (Below-Median) Female Retiree * 1.020

Disabled Retirees

General	RP2000 Male Disabled Retiree *0.936
	RP2000 Female Disabled Retiree * 1.065
Public Safety	RP2000 Male Disabled Retiree *0.978
	RP2000 Female Disabled Retiree * 1.002

Beneficiaries/Survivors

General and Public Safety

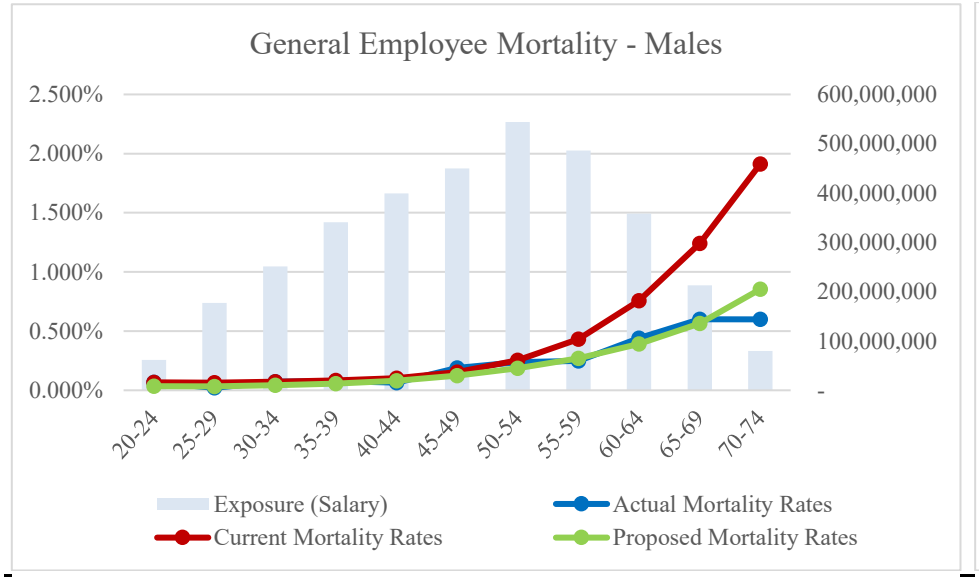
Pub-2010 Male Contingent Survivor *1.264
Pub-2010 Female Contingent Survivor * 1.326

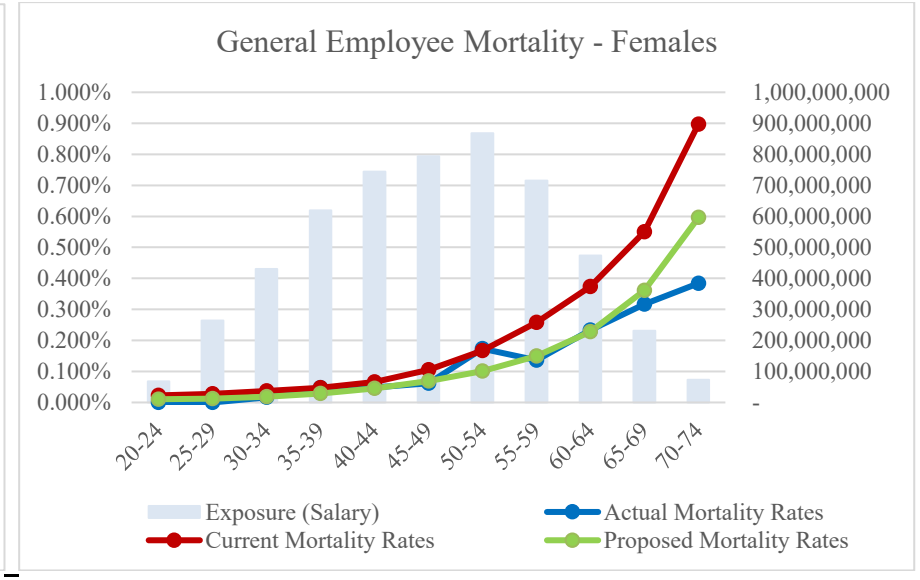
The graphs presented below provide a visual representation of the actual and proposed mortality rates compared to the current assumptions. The tables on which the graphs are based, which include the exposure, can be found in the Appendix.

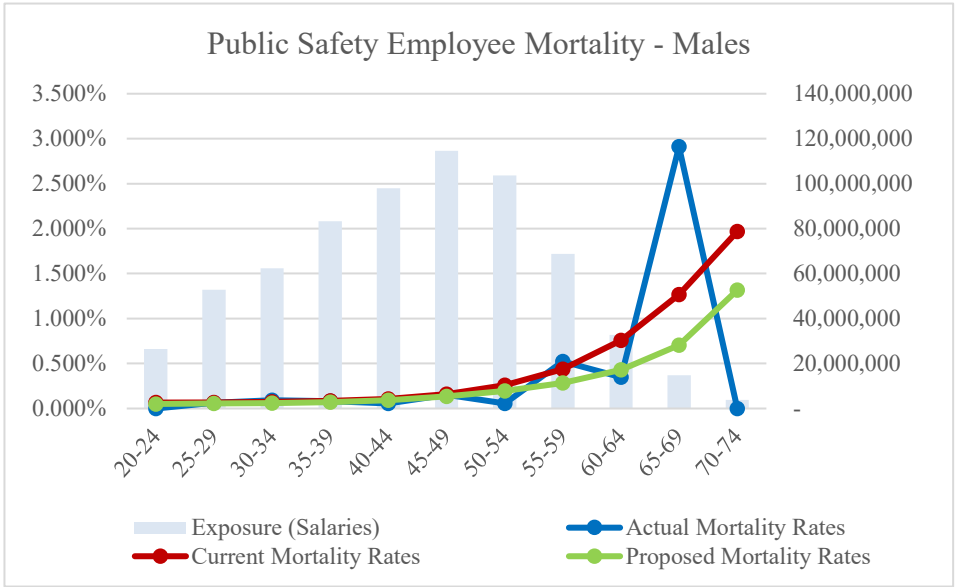
Impact on Valuation Results

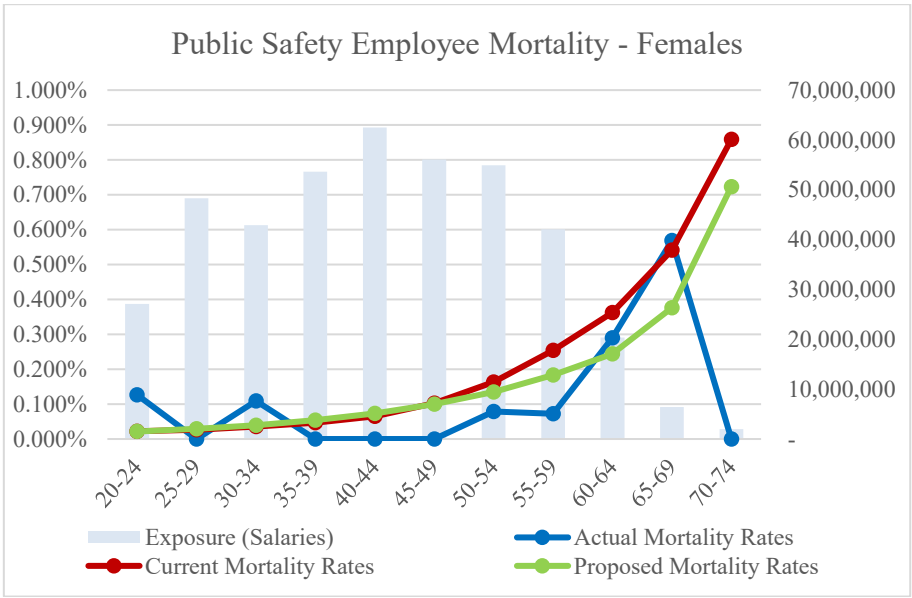
The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

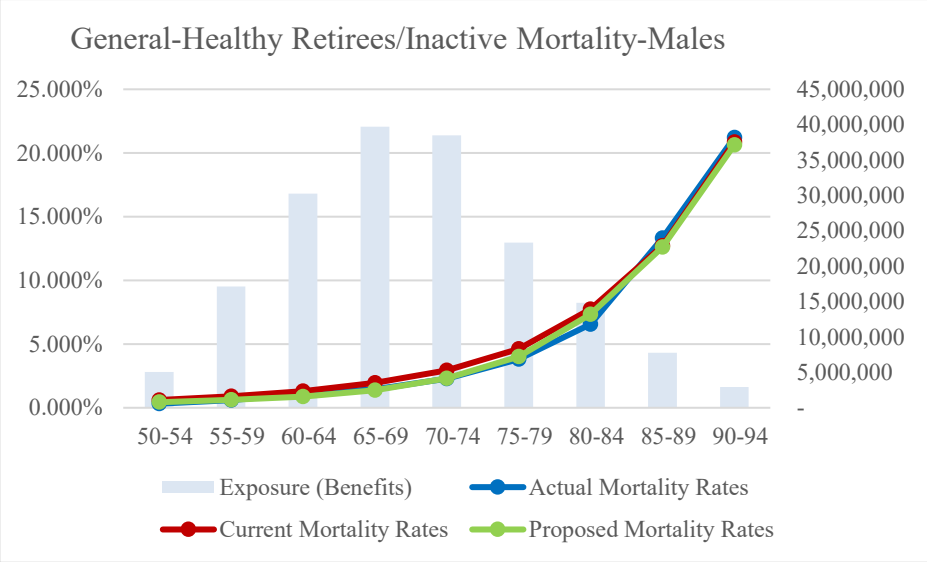
	Change in Accrued Liability	Change in Normal Cost
Rank and File	71,072,705	2,326,560
Judges	1,663,655	161,010
Hazardous Duty Plans	4,085,835	99,346
Retirees/Inactive Members	(99,878,916)	0
TOTAL	(23,056,721)	2,586,916

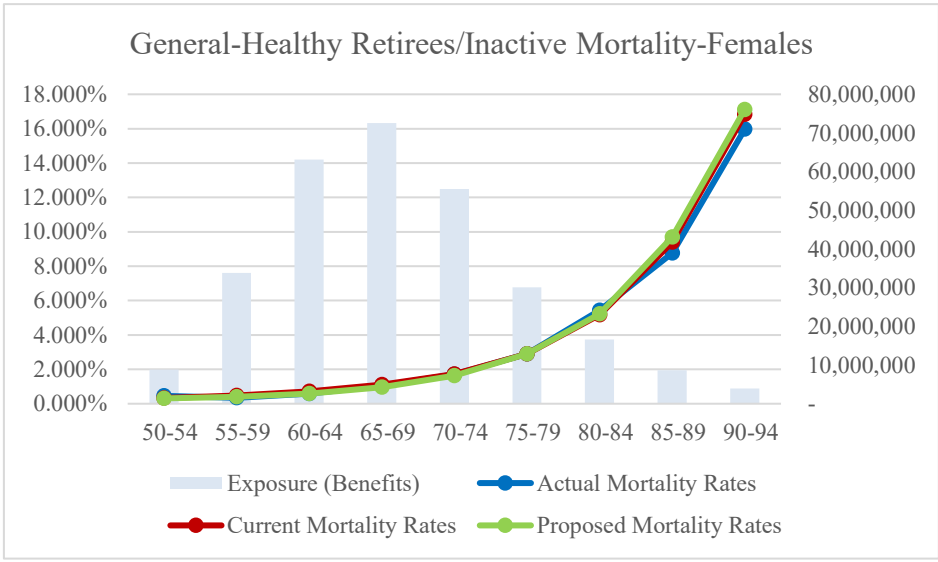

General Employee Mortality - Males
2.500%
2.000%
1.500%
1.000%
0.500%
0.000%
600,000,000
500,000,000
400,000,000
300,000,000
200,000,000
100,000,000
-
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
Exposure (Salary)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

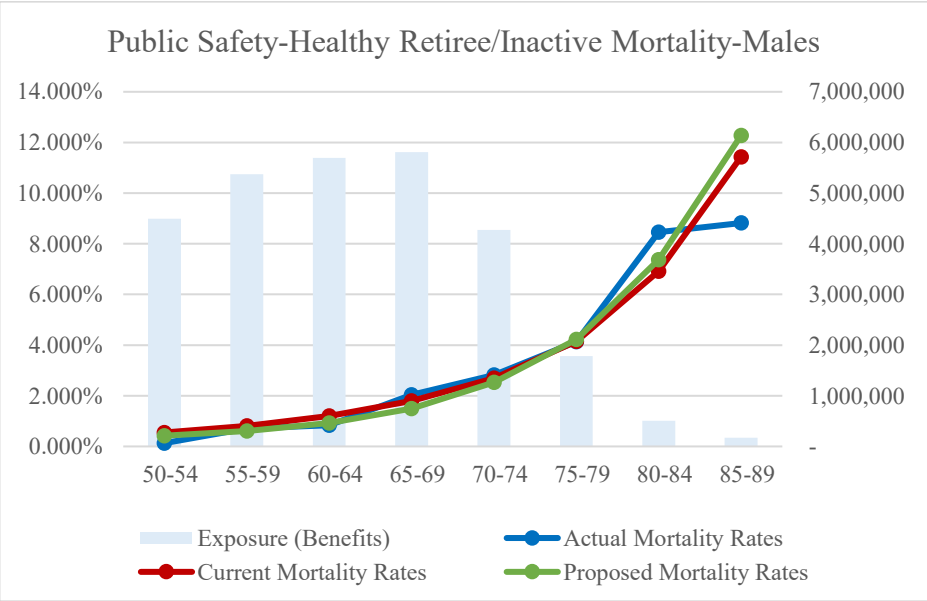

General Employee Mortality - Females
1.000%
0.900%
0.800%
0.700%
0.600%
0.500%
0.400%
0.300%
0.200%
0.100%
0.000%
1,000,000,000
900,000,000
800,000,000
700,000,000
600,000,000
500,000,000
400,000,000
300,000,000
200,000,000
100,000,000
-
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
Exposure (Salary)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

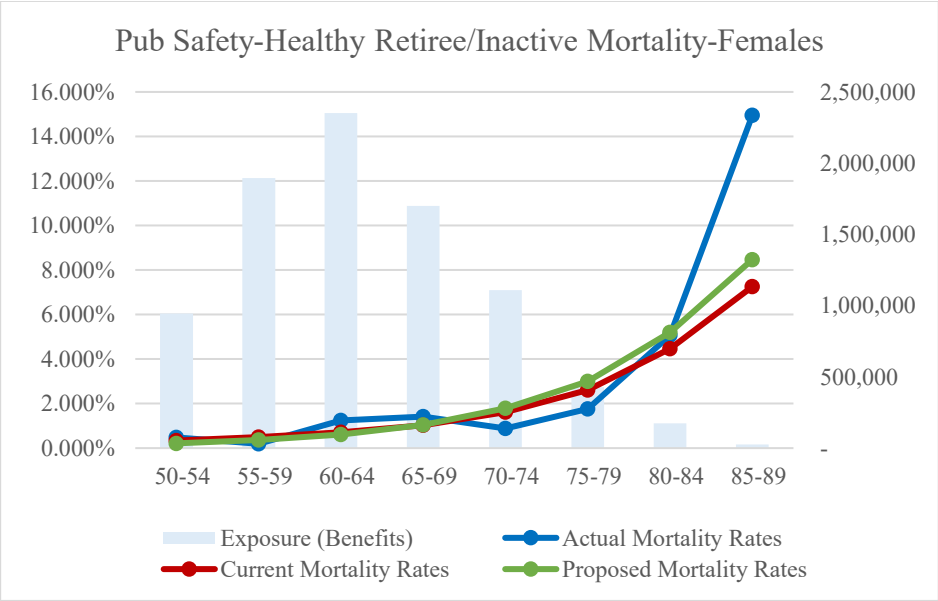

Public Safety Employee Mortality - Males
3.500%
3.000%
2.500%
2.000%
1.500%
1.000%
0.500%
0.000%
140,000,000
120,000,000
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
-
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
Exposure (Salaries)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

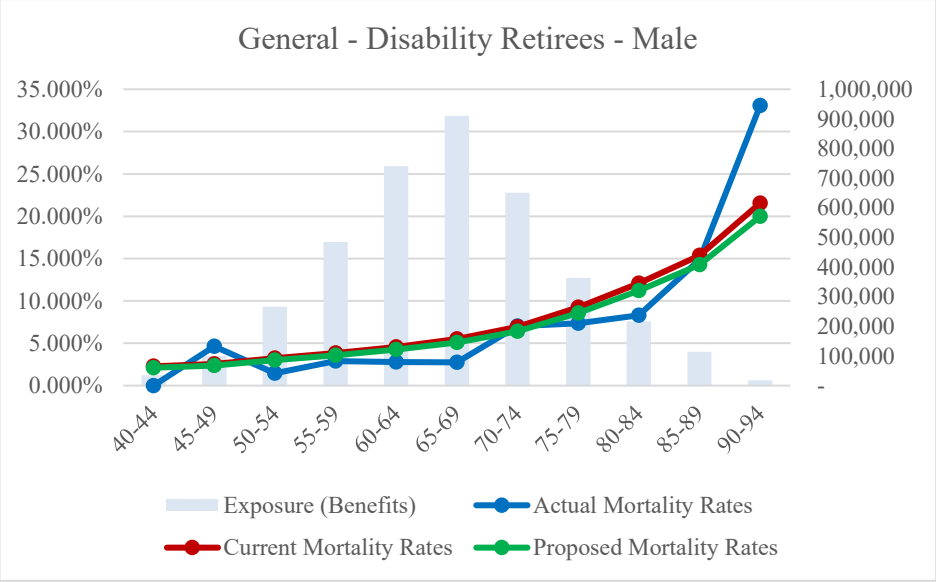

Public Safety Employee Mortality - Females
1.000%
0.900%
0.800%
0.700%
0.600%
0.500%
0.400%
0.300%
0.200%
0.100%
0.000%
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
-
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
Exposure (Salaries)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

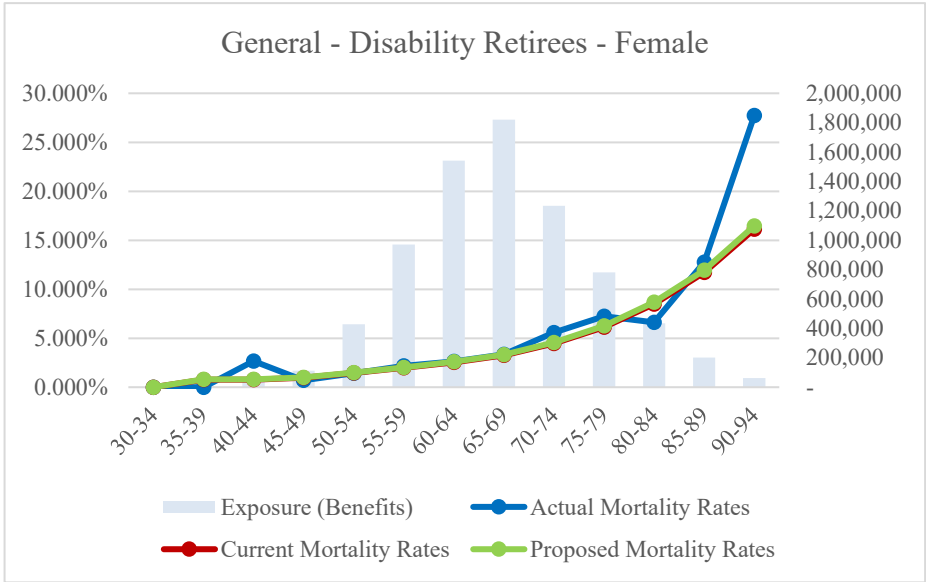

General-Healthy Retirees/Inactive Mortality-Males
25.000%
20.000%
15.000%
10.000%
5.000%
0.000%
45,000,000
40,000,000
35,000,000
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
-
50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

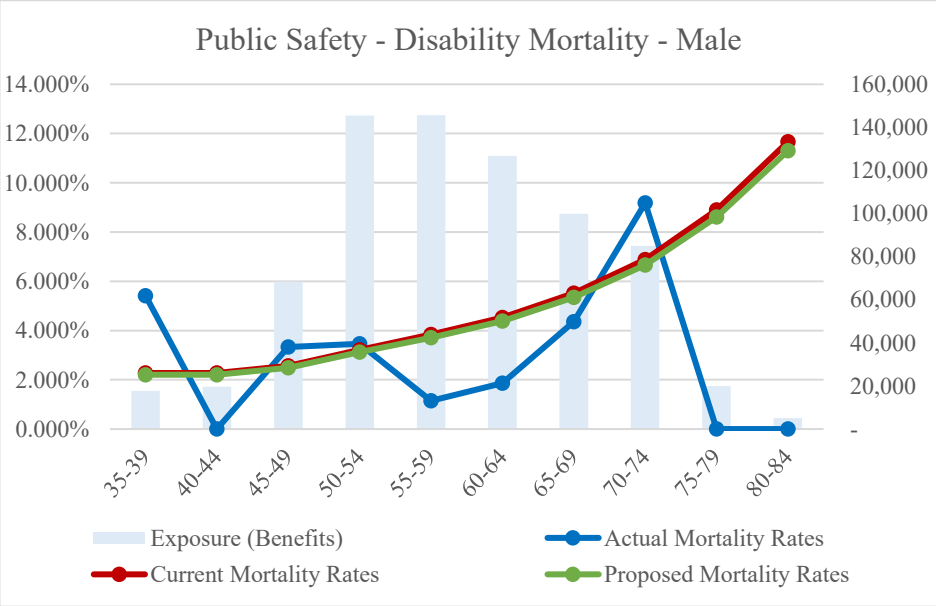

General-Healthy Retirees/Inactive Mortality-Females
18.000%
16.000%
14.000%
12.000%
10.000%
8.000%
6.000%
4.000%
2.000%
0.000%
80,000,000
70,000,000
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
-
50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89 90-94
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

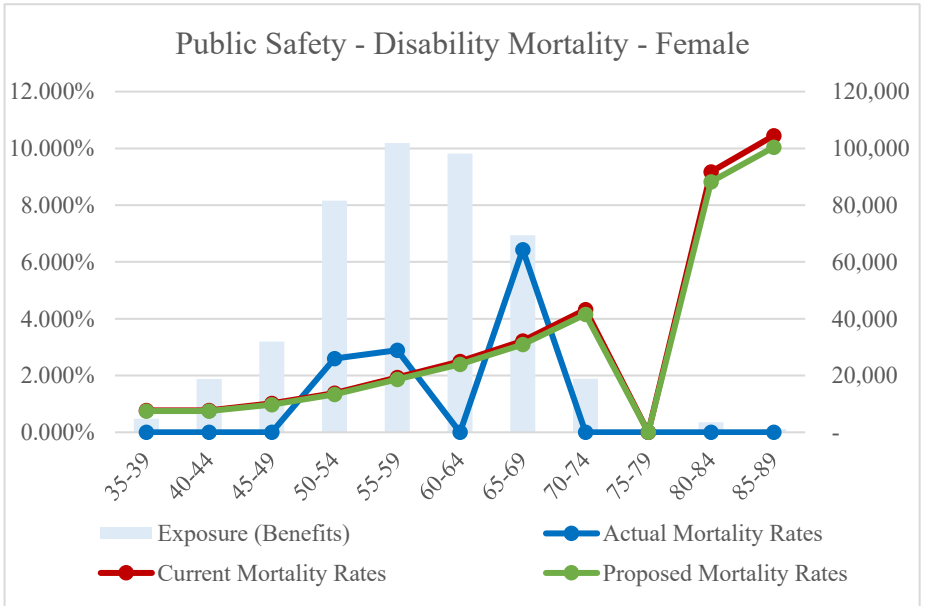

Public Safety-Healthy Retiree/Inactive Mortality-Males
14.000%
12.000%
10.000%
8.000%
6.000%
4.000%
2.000%
0.000%
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

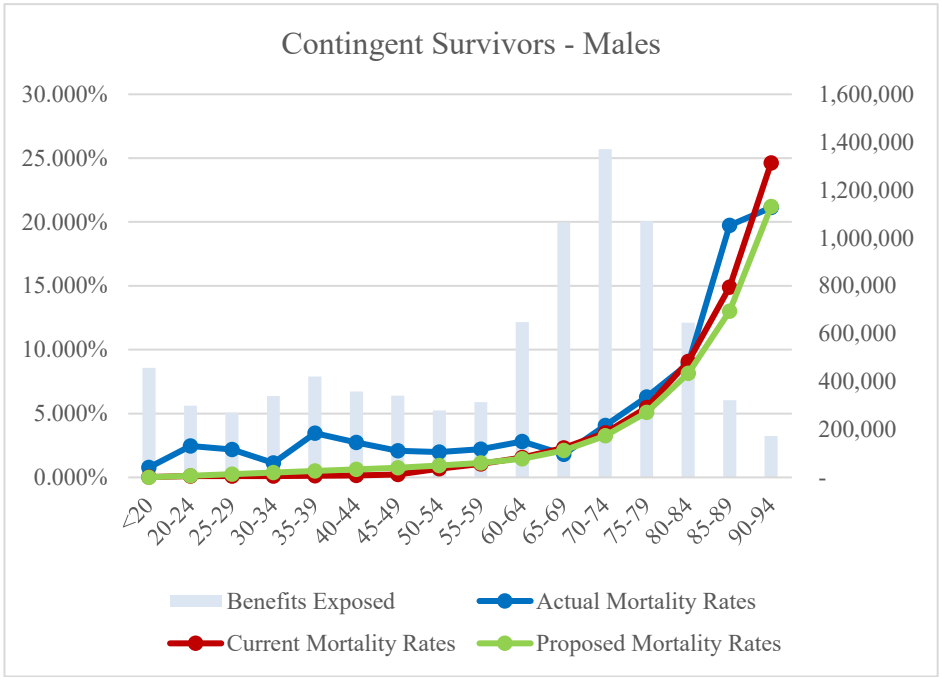

Pub Safety-Healthy Retiree/Inactive Mortality-Females
16.000%
14.000%
12.000%
10.000%
8.000%
6.000%
4.000%
2.000%
0.000%
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

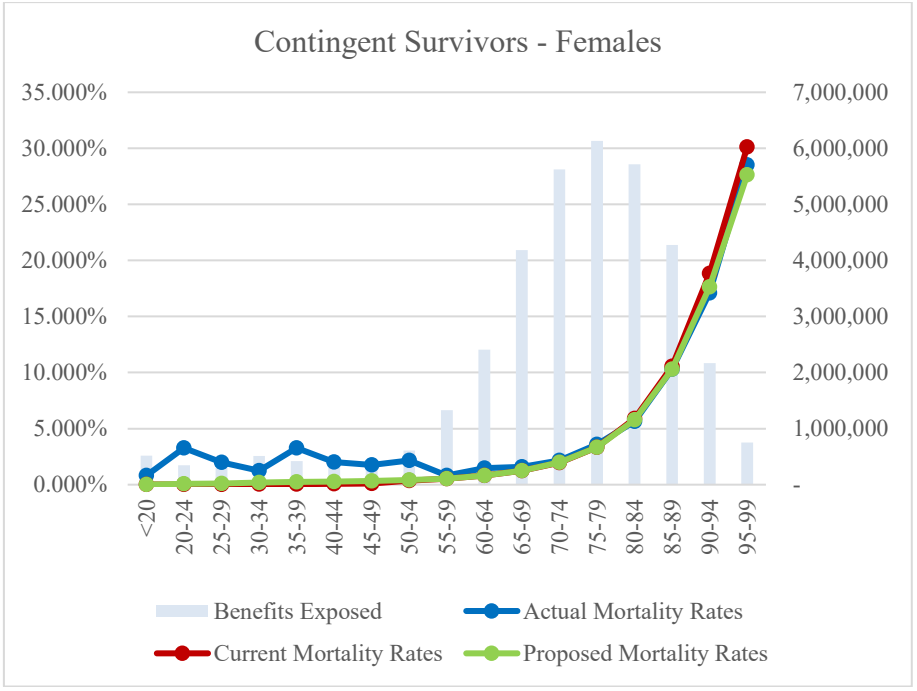

General - Disability Retirees - Male
35.000%
30.000%
25.000%
20.000%
15.000%
10.000%
5.000%
0.000%
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90-94
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates


General - Disability Retirees - Female
30.000%
25.000%
20.000%
15.000%
10.000%
5.000%
0.000%
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90-94
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates


Public Safety - Disability Mortality - Male
14.000%
12.000%
10.000%
8.000%
6.000%
4.000%
2.000%
0.000%
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
-
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates


Public Safety - Disability Mortality - Female
12.000%
10.000%
8.000%
6.000%
4.000%
2.000%
0.000%
120,000
100,000
80,000
60,000
40,000
20,000
-
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
Exposure (Benefits)
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates


Contingent Survivors - Males
30.000%
25.000%
20.000%
15.000%
10.000%
5.000%
0.000%
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
<20
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90-94
Benefits Exposed
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates


Contingent Survivors - Females
35.000%
30.000%
25.000%
20.000%
15.000%
10.000%
5.000%
0.000%
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
<20
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90-94
95-99
Benefits Exposed
Actual Mortality Rates
Current Mortality Rates
Proposed Mortality Rates

DISABILITY INCIDENCE RATES

The disability incidence assumption is the probability that a member will become disabled while actively participating in the plan. A review of past experience compared to the current assumptions provides the basis for examining the assumption.

Current Assumptions

Rank and File, Judges, and Corrections/Hazardous Duty currently each have distinct tables of disability assumptions that vary by member age.

Experience and Proposed Assumptions

The rates illustrated are unisex and represent the probability of disability, given the member had met the eligibility requirements. If the member did not meet the eligibility requirements at a given age, the member's exposure was excluded for that age. As shown on the tables in the Appendix, the overall disability experience varies by Plan.

Rank and File – The actual rate of disability incidence was less than expected for almost all ages. The actual aggregate rate of disabilities was 0.05% compared to an expected aggregate rate of 0.11%. In the prior experience study, the actual aggregate disability rate was 0.09%. Therefore, we are recommending decreasing the disability assumptions at almost all ages, but not quite to the level of actual experience for the most recent period.

Judges – This group experienced no disabilities during the study period, or the prior study period (2013-2018). There were 2 disabilities out of 1,308 exposures in the 2008-2013 study. The expected aggregate rate of disabilities was 0.02% for ages 45-69 and 0% for all other ages. We propose retaining these rates since a rate of .02% for the current exposure results in one disability every 15 years.

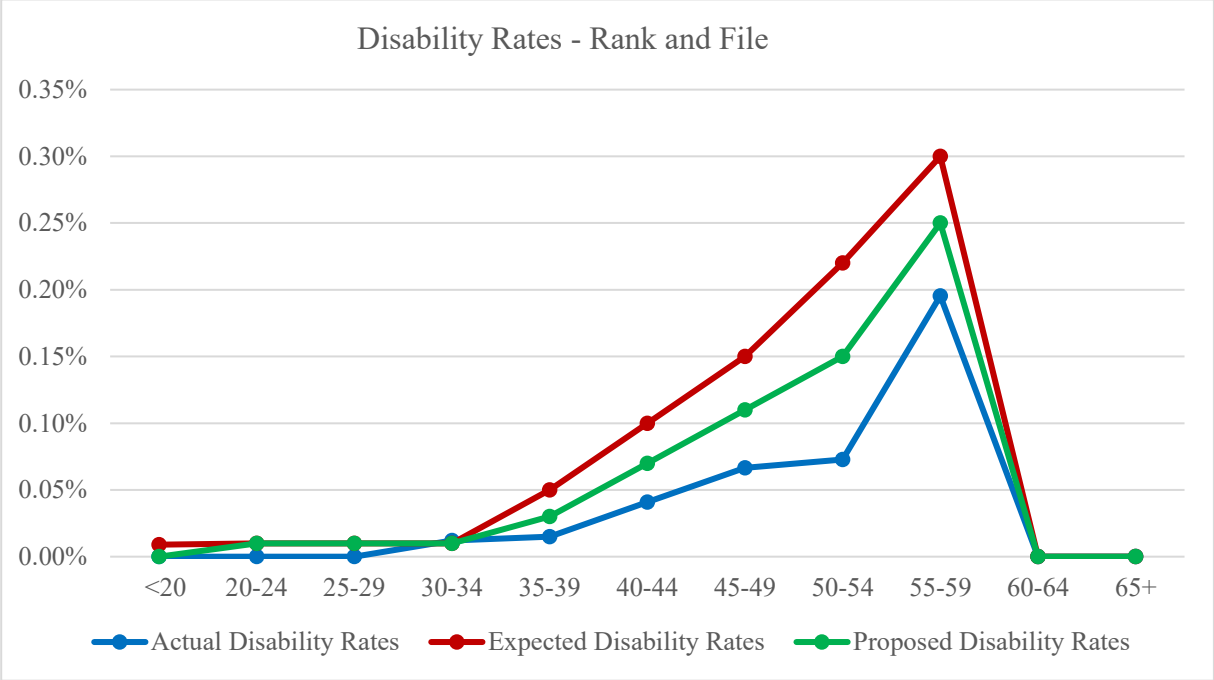
Corrections/Hazardous Duty – The Corrections/Hazardous Duty plans experienced a lower incidence of disabilities than expected. The actual aggregate rate of disability retirements was 0.15% compared to the expected aggregate rate of 0.23%. We recommend decreasing the disability rates at most ages, with increases for a few ages where actual experience was greater than expected. All proposed rates are between the prior expected rates and actual experience.

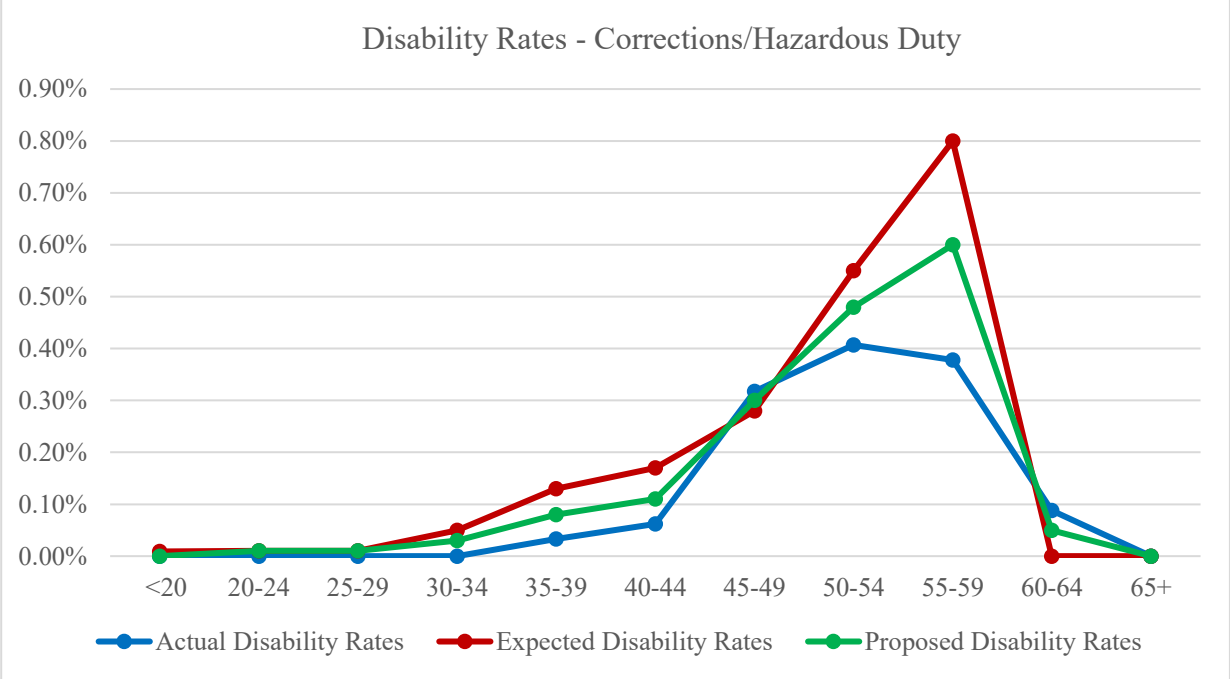
Impact on Valuation Results

The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

	Change in Accrued Liability	Change in Normal Cost
Rank and File	6,997,484	433,489
Judges	0	0
Corrections/Hazardous Duty	(507,081)	508,875
TOTAL	6,490,403	942,364

The graphs presented below provide a visual representation of the actual and proposed disability rates compared to the current assumptions. The tables on which the graphs are based, which include the exposure, can be found in the Appendix.


Disability Rates - Rank and File
0.35%
0.30%
0.25%
0.20%
0.15%
0.10%
0.05%
0.00%
<20
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65+
Actual Disability Rates
Expected Disability Rates
Proposed Disability Rates


Disability Rates - Corrections/Hazardous Duty
0.90%
0.80%
0.70%
0.60%
0.50%
0.40%
0.30%
0.20%
0.10%
0.00%
<20
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65+
Actual Disability Rates
Expected Disability Rates
Proposed Disability Rates

OTHER ASSUMPTIONS

Deferred vested: Currently, the valuation assumes 80% of participants that leave the system as vested members will receive a deferred benefit upon attaining the retirement eligibility requirements. Based on the limited data available, we believe this assumption is reasonable and recommend no changes.

Dependent/minor children: Current statistics regarding the number of dependent/minor children are based on population reports published by the United States Census Bureau. We recommend no changes to these assumptions.

Spouse's age: Male spouses are assumed to be 3 years older. Correspondingly, female spouses are assumed to be three years younger. We recommend no changes to this assumption.

Marital status: The current valuation assumes that 75% of active members are married. This statistic is used to determine the probability that spousal benefits will be payable in the event of an active member's death. We are not provided the marital status on the census data, but as this is common assumption for public plans, and we believe it to be reasonable, we recommend no changes to this assumption.

Unisex rates: For valuation purposes, we use sex distinct mortality rates. However, for service purchases, service transfers, and option factors it is appropriate to use unisex rates. We currently assume that the membership is 40% male and 60% female. This remains representative of LASERS' current population, so we recommend no changes to these assumptions.

Option factors: The current option factors are based on the current mortality assumptions and the 7.50% discount rate. We recommend revising the factors to be based on the proposed base mortality tables for retirees using a single table determined as 90% general and 10% public safety and we recommend using the 7.25% discount rate. We recommend using a static projection of mortality improvement to the middle of the next five-year experience study period (i.e., 2025) rather than using a fully generational projection (which would produce different rates each year).

Unused annual leave service credit adjustments: Retirements during the five-year observation period were reviewed to determine the amount of leave credit converted to service credit or lump sum at retirement. Since leave credit is accrued throughout the duration of the member's career, we recognize the anticipated average service credit to be converted as a percentage increase of the accrued benefit. Based on recent plan experience, we recommend revising this assumption as follows.

	Prior Rates		Recommended Rates	
	Regular Retirement	Disability	Regular Retirement	Disability
Regular Members	5.00%	1.50%	5.00%	1.25%
Judges	0.50%	1.00%	0.50%	1.00%
Corrections	9.00%	3.00%	9.50%	3.25%
Wildlife	9.00%	3.00%	9.50%	3.25%
Rehired Retirees	7.50%	N/A	7.50%	N/A

Impact on Valuation Results

The table below shows the impact of the proposed changes to the accrued liability and normal cost by Plan. Note the change in accrued liability and normal cost are determined based on the recent June 30, 2023 actuarial valuation, retaining prior decrements for all other assumptions.

	Change in Accrued Liability	Change in Normal Cost
Rank and File	(99,614)	(5,321)
Judges	0	0
Hazardous Duty Plans	2,480,771	114,183
TOTAL	2,381,157	108,862

APPENDIX

SALARY AND REAL WAGE GROWTH TABLES

Salary Growth Rates – Rank & File										
					Nominal Increases			Real Increases		
Service	Eligible Members	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Proposed Increase	Actual Increase	Expected Increase	Proposed Increase
< 1	30,596	792,539,586	923,343,356	893,977,773	16.50%	12.80%	13.95%	12.60%	10.50%	11.55%
1	11,342	384,019,728	420,703,120	410,515,434	9.55%	6.90%	7.53%	5.65%	4.60%	5.13%
2	9,602	356,208,191	387,296,249	378,113,661	8.73%	6.15%	6.74%	4.83%	3.85%	4.34%
3	8,256	322,885,190	349,458,262	340,320,696	8.23%	5.40%	6.11%	4.33%	3.10%	3.71%
4	6,940	289,931,397	312,540,170	304,846,874	7.80%	5.14%	5.77%	3.90%	2.84%	3.37%
5	6,002	265,995,987	285,548,381	279,002,144	7.35%	4.89%	5.42%	3.45%	2.59%	3.02%
6	5,321	247,035,398	264,770,517	258,374,390	7.18%	4.59%	5.18%	3.28%	2.29%	2.78%
7	4,530	220,504,079	235,520,730	229,970,617	6.81%	4.29%	4.85%	2.91%	1.99%	2.45%
8	4,305	210,302,394	223,497,832	218,698,161	6.27%	3.99%	4.48%	2.37%	1.69%	2.08%
9	4,881	236,621,241	251,864,056	245,824,117	6.44%	3.89%	4.43%	2.54%	1.59%	2.03%
10	5,121	252,693,108	268,084,838	261,770,546	6.09%	3.59%	4.14%	2.19%	1.29%	1.74%
11	5,067	256,966,887	272,087,415	266,193,107	5.88%	3.59%	4.04%	1.98%	1.29%	1.64%
12	5,364	275,528,876	291,519,313	285,417,525	5.80%	3.59%	4.00%	1.90%	1.29%	1.60%
13	5,180	272,674,969	288,994,363	281,662,305	5.98%	3.30%	3.94%	2.08%	1.00%	1.54%
14	5,014	265,656,820	281,663,501	274,149,506	6.03%	3.20%	3.91%	2.13%	0.90%	1.51%
15	4,462	238,083,141	251,108,564	245,693,290	5.47%	3.20%	3.63%	1.57%	0.90%	1.23%
16	4,392	237,375,480	249,962,791	244,963,632	5.30%	3.20%	3.56%	1.40%	0.90%	1.16%
17	4,257	232,499,635	244,948,764	239,927,009	5.35%	3.19%	3.56%	1.45%	0.89%	1.16%
18	4,179	226,903,507	238,385,643	233,933,488	5.06%	3.10%	3.38%	1.16%	0.80%	0.98%
19	4,060	222,012,369	233,158,738	228,676,337	5.02%	3.00%	3.26%	1.12%	0.70%	0.86%
20	3,745	209,976,143	220,225,581	216,276,003	4.88%	3.00%	3.26%	0.98%	0.70%	0.86%
21	3,436	190,719,585	200,041,245	196,442,518	4.89%	3.00%	3.26%	0.99%	0.70%	0.86%
22	3,292	189,069,502	198,283,449	194,742,646	4.87%	3.00%	3.26%	0.97%	0.70%	0.86%
23	3,072	148,684,568	156,341,859	153,146,341	5.15%	3.00%	3.26%	1.25%	0.70%	0.86%
24	3,435	187,895,203	198,206,305	193,538,597	5.49%	3.00%	3.26%	1.59%	0.70%	0.86%
25	2,270	130,463,468	136,972,496	134,377,992	4.99%	3.00%	3.26%	1.09%	0.70%	0.86%
26	2,144	124,548,488	130,279,563	128,284,983	4.60%	3.00%	3.26%	0.70%	0.70%	0.86%
27	2,021	118,485,775	123,947,695	122,040,396	4.61%	3.00%	3.26%	0.71%	0.70%	0.86%
28	1,751	64,122,325	67,147,288	66,046,042	4.72%	3.00%	3.26%	0.82%	0.70%	0.86%
29	2,743	153,534,824	161,714,885	158,140,963	5.33%	3.00%	3.26%	1.43%	0.70%	0.86%
30+	2,332	136,480,078	141,830,573	140,574,829	3.92%	3.00%	3.26%	0.02%	0.70%	0.86%
Total	169,112	7,460,417,943	8,009,447,542	7,825,641,924	7.36%	4.90%	5.43%	3.46%	2.60%	3.03%

Salary Growth Rates - Judges										
					Nominal Increases			Real Increases		
Service	Eligible Members	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Proposed Increase	Actual Increase	Expected Increase	Proposed Increase
< 1	207	30,572,828	31,927,004	32,116,756	4.43%	5.05%	4.80%	0.53%	2.75%	2.40%
1	48	7,244,931	7,466,191	7,429,677	3.05%	2.55%	2.60%	-0.85%	0.25%	0.20%
2	86	12,657,407	13,028,004	12,980,171	2.93%	2.55%	2.60%	-0.97%	0.25%	0.20%
3	80	11,740,005	11,915,036	12,039,375	1.49%	2.55%	2.60%	-2.41%	0.25%	0.20%
4	76	10,927,615	11,141,376	11,206,269	1.96%	2.55%	2.60%	-1.94%	0.25%	0.20%
5	71	10,408,237	10,733,559	10,673,647	3.13%	2.55%	2.60%	-0.77%	0.25%	0.20%
6	74	11,046,451	11,391,824	11,328,136	3.13%	2.55%	2.60%	-0.77%	0.25%	0.20%
7	36	5,015,331	5,152,458	5,143,222	2.73%	2.55%	2.60%	-1.17%	0.25%	0.20%
8	64	9,384,964	9,609,461	9,624,281	2.39%	2.55%	2.60%	-1.51%	0.25%	0.20%
9	58	8,631,393	8,914,366	8,851,494	3.28%	2.55%	2.60%	-0.62%	0.25%	0.20%
10	58	8,401,841	8,464,546	8,616,088	0.75%	2.55%	2.60%	-3.15%	0.25%	0.20%
11	81	11,771,630	12,144,955	12,071,807	3.17%	2.55%	2.60%	-0.73%	0.25%	0.20%
12	61	9,122,770	9,424,352	9,355,401	3.31%	2.55%	2.60%	-0.59%	0.25%	0.20%
13	46	5,921,347	6,085,587	6,072,341	2.77%	2.55%	2.60%	-1.13%	0.25%	0.20%
14	47	6,213,370	6,321,756	6,371,811	1.74%	2.55%	2.60%	-2.16%	0.25%	0.20%
15	55	6,841,576	7,106,938	7,016,036	3.88%	2.55%	2.60%	-0.02%	0.25%	0.20%
16	47	5,640,376	5,856,973	5,784,206	3.84%	2.55%	2.60%	-0.06%	0.25%	0.20%
17	81	10,439,494	10,726,779	10,705,701	2.75%	2.55%	2.60%	-1.15%	0.25%	0.20%
18	32	4,531,810	4,681,795	4,647,371	3.31%	2.55%	2.60%	-0.59%	0.25%	0.20%
19	33	4,414,217	4,598,267	4,526,779	4.17%	2.55%	2.60%	0.27%	0.25%	0.20%
20	33	4,782,747	4,866,161	4,904,707	1.74%	2.55%	2.40%	-2.16%	0.25%	0.00%
21	49	6,816,954	6,948,714	6,990,786	1.93%	2.55%	2.40%	-1.97%	0.25%	0.00%
22	57	7,217,108	7,360,694	7,401,144	1.99%	2.55%	2.40%	-1.91%	0.25%	0.00%
23	37	4,213,870	4,326,388	4,321,324	2.67%	2.55%	2.40%	-1.23%	0.25%	0.00%
24	37	4,447,925	4,462,809	4,561,347	0.33%	2.55%	2.40%	-3.57%	0.25%	0.00%
25	38	5,152,248	5,234,700	5,283,630	1.60%	2.55%	2.40%	-2.30%	0.25%	0.00%
26	31	2,924,108	2,969,045	2,998,673	1.54%	2.55%	2.40%	-2.36%	0.25%	0.00%
27	28	3,494,822	3,592,577	3,583,940	2.80%	2.55%	2.40%	-1.10%	0.25%	0.00%
28	24	2,998,195	3,093,643	3,074,649	3.18%	2.55%	2.40%	-0.72%	0.25%	0.00%
29	18	2,469,350	2,504,630	2,532,318	1.43%	2.55%	2.40%	-2.47%	0.25%	0.00%
30+	21	2,591,959	2,673,351	2,658,054	3.14%	2.55%	2.40%	-0.76%	0.25%	0.00%
Total	1,714	238,036,879	244,723,939	244,871,142	2.81%	2.87%	2.84%	-1.09%	0.57%	0.44%

Salary Growth Rates – Hazardous Duty										
					Nominal Increases			Real Increases		
Service	Eligible Members	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Proposed Increase	Actual Increase	Expected Increase	Proposed Increase
< 1	5,995	124,100,257	150,259,794	141,219,043	21.08%	13.79%	15.29%	17.18%	11.49%	12.89%
1	1,743	55,117,341	62,036,680	59,416,494	12.55%	7.80%	9.30%	8.65%	5.50%	6.90%
2	1,435	50,146,734	55,998,967	53,305,533	11.67%	6.30%	7.80%	7.77%	4.00%	5.40%
3	1,190	45,447,549	50,279,264	48,197,126	10.63%	6.05%	7.55%	6.73%	3.75%	5.15%
4	965	38,065,405	41,881,634	40,271,962	10.03%	5.80%	7.30%	6.13%	3.50%	4.90%
5	814	34,377,338	37,195,779	36,283,574	8.20%	5.55%	6.43%	4.30%	3.25%	4.03%
6	694	30,347,532	32,917,443	32,030,567	8.47%	5.55%	6.43%	4.57%	3.25%	4.03%
7	581	25,583,024	27,557,558	26,810,780	7.72%	4.80%	5.68%	3.82%	2.50%	3.28%
8	518	23,005,835	24,703,702	24,109,455	7.38%	4.80%	5.68%	3.48%	2.50%	3.28%
9	543	23,985,704	25,895,117	25,133,327	7.96%	4.78%	5.68%	4.06%	2.48%	3.28%
10	593	26,723,061	28,757,587	28,004,518	7.61%	4.80%	5.68%	3.71%	2.50%	3.28%
11	596	28,271,150	30,129,639	29,626,774	6.57%	4.80%	5.68%	2.67%	2.50%	3.28%
12	636	30,680,761	32,750,381	32,152,688	6.75%	4.80%	5.68%	2.85%	2.50%	3.28%
13	609	31,202,774	33,143,347	32,542,824	6.22%	4.29%	5.17%	2.32%	1.99%	2.77%
14	568	29,924,529	32,002,673	31,060,712	6.94%	3.80%	4.68%	3.04%	1.50%	2.28%
15	538	28,771,346	30,816,460	29,794,275	7.11%	3.56%	4.44%	3.21%	1.26%	2.04%
16	584	30,862,649	32,593,002	31,960,843	5.61%	3.56%	4.44%	1.71%	1.26%	2.04%
17	618	33,478,569	35,309,790	34,669,174	5.47%	3.56%	4.44%	1.57%	1.26%	2.04%
18	658	34,467,558	36,801,182	35,693,070	6.77%	3.56%	4.44%	2.87%	1.26%	2.04%
19	739	43,247,764	45,666,411	44,789,953	5.59%	3.57%	4.44%	1.69%	1.27%	2.04%
20	575	32,890,249	34,785,273	34,061,193	5.76%	3.56%	4.44%	1.86%	1.26%	2.04%
21	510	29,290,050	30,810,280	30,329,847	5.19%	3.55%	4.44%	1.29%	1.25%	2.04%
22	444	26,716,046	28,224,859	27,664,465	5.65%	3.55%	4.44%	1.75%	1.25%	2.04%
23	379	12,381,451	13,115,547	12,820,992	5.93%	3.55%	4.44%	2.03%	1.25%	2.04%
24	323	16,212,972	17,453,720	16,788,532	7.65%	3.55%	4.44%	3.75%	1.25%	2.04%
25	135	7,704,546	8,105,967	7,978,057	5.21%	3.55%	4.44%	1.31%	1.25%	2.04%
26	115	6,778,355	7,129,608	7,018,987	5.18%	3.55%	4.44%	1.28%	1.25%	2.04%
27	103	5,611,218	5,902,955	5,810,416	5.20%	3.55%	4.44%	1.30%	1.25%	2.04%
28	75	3,235,381	3,430,325	3,350,237	6.03%	3.55%	4.44%	2.13%	1.25%	2.04%
29	52	2,563,712	2,666,574	2,654,724	4.01%	3.55%	4.44%	0.11%	1.25%	2.04%
30+	103	5,817,059	6,002,315	6,021,660	3.18%	3.52%	4.44%	-0.72%	1.22%	2.04%
Total	23,431	917,007,919	1,004,323,831	971,571,802	9.52%	5.95%	7.04%	5.62%	3.65%	4.64%

RETIREMENT RATE TABLES

Retirement/DROP Rates – Rank & File												
	< 10 Years of Service				10-19 Years of Service				20-24 Years of Service			
Age	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate
38	0	N/A	0.0%	0.0%	2	0.0%	5.0%	3.0%	25	4.0%	5.0%	3.0%
39	0	N/A	0.0%	0.0%	11	0.0%	5.0%	3.0%	64	3.1%	5.0%	3.0%
40	0	N/A	0.0%	0.0%	9	0.0%	5.0%	3.0%	133	0.8%	5.0%	3.0%
41	0	N/A	0.0%	0.0%	10	10.0%	5.0%	3.0%	216	1.9%	5.0%	3.0%
42	0	N/A	0.0%	0.0%	15	6.7%	5.0%	3.0%	314	1.3%	5.0%	3.0%
43	0	N/A	0.0%	0.0%	24	0.0%	5.0%	3.0%	485	1.4%	5.0%	3.0%
44	0	N/A	0.0%	0.0%	42	0.0%	5.0%	3.0%	600	1.0%	5.0%	3.0%
45	0	N/A	0.0%	0.0%	28	3.6%	5.0%	3.0%	766	2.5%	5.0%	3.0%
46	0	N/A	0.0%	0.0%	28	3.6%	5.0%	3.0%	841	1.8%	5.0%	3.0%
47	0	N/A	0.0%	0.0%	29	3.4%	5.0%	3.0%	892	1.8%	5.0%	3.0%
48	0	N/A	0.0%	0.0%	15	0.0%	8.0%	3.0%	942	1.1%	8.0%	3.0%
49	0	N/A	0.0%	0.0%	22	0.0%	8.0%	3.0%	924	1.2%	8.0%	3.0%
50	0	N/A	0.0%	0.0%	24	4.2%	10.0%	3.5%	934	1.6%	10.0%	3.5%
51	0	N/A	0.0%	0.0%	15	6.7%	10.0%	3.5%	895	1.7%	10.0%	3.5%
52	0	N/A	0.0%	0.0%	18	0.0%	10.0%	5.5%	867	2.7%	10.0%	5.5%
53	0	N/A	0.0%	0.0%	19	0.0%	10.0%	6.5%	830	2.7%	10.0%	6.5%
54	0	N/A	0.0%	0.0%	28	10.7%	25.0%	10.0%	827	6.8%	25.0%	10.0%
55	0	N/A	0.0%	0.0%	25	0.0%	18.0%	12.0%	767	12.1%	18.0%	12.0%
56	0	N/A	0.0%	0.0%	24	8.3%	18.0%	12.0%	753	8.0%	18.0%	12.0%
57	0	N/A	0.0%	0.0%	18	5.6%	18.0%	12.0%	729	10.6%	18.0%	12.0%
58	0	N/A	0.0%	0.0%	16	0.0%	18.0%	12.0%	694	9.2%	18.0%	12.0%
59	0	N/A	0.0%	0.0%	28	35.7%	18.0%	28.0%	692	27.6%	18.0%	28.0%
60	352	14.2%	35.0%	17.0%	1,245	28.7%	35.0%	35.0%	534	49.3%	35.0%	35.0%
61	318	9.7%	18.0%	13.6%	916	10.4%	18.0%	16.5%	277	15.9%	18.0%	16.5%
62	387	10.3%	17.0%	13.6%	834	12.7%	17.0%	16.5%	270	14.4%	17.0%	16.5%
63	321	9.0%	15.0%	13.6%	843	10.1%	15.0%	14.5%	304	13.2%	15.0%	14.5%
64	263	11.4%	17.0%	13.6%	886	13.7%	17.0%	18.0%	365	18.1%	17.0%	18.0%
65	217	15.7%	20.0%	18.0%	733	16.2%	20.0%	18.0%	339	18.0%	20.0%	18.0%
66	150	18.0%	18.0%	18.0%	572	19.6%	18.0%	20.0%	290	23.4%	18.0%	20.0%
67	109	11.0%	18.0%	15.6%	428	18.7%	18.0%	18.5%	216	16.7%	18.0%	18.5%
68	83	10.8%	18.0%	15.6%	325	16.0%	18.0%	18.5%	173	23.7%	18.0%	18.5%
69	65	21.5%	18.0%	15.6%	246	19.5%	18.0%	18.5%	146	17.1%	18.0%	18.5%
70	42	11.9%	18.0%	15.6%	190	15.8%	18.0%	18.5%	125	24.0%	18.0%	18.5%
71	29	10.3%	18.0%	15.6%	165	13.9%	18.0%	18.5%	77	10.4%	18.0%	18.5%
72	26	15.4%	18.0%	15.6%	133	19.5%	18.0%	18.5%	69	21.7%	18.0%	18.5%
73	15	6.7%	18.0%	15.6%	100	25.0%	18.0%	18.5%	61	16.4%	18.0%	18.5%
74	10	20.0%	18.0%	15.6%	68	14.7%	18.0%	18.5%	52	19.2%	18.0%	18.5%
75+	36	27.8%	100.0%	100.0%	153	19.6%	100.0%	100.0%	124	18.5%	100.0%	100.0%
Total	2,423	12.4%	21.2%	16.4%	8,287	16.2%	21.3%	21.0%	17,612	8.5%	13.5%	10.1%

Retirement/DROP Rates – Rank & File (cont.)												
	25-29 Years of Service				30+ Years of Service				All Years of Service			
Age	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate
38	0	N/A	5.0%	5.3%	0	N/A	0.0%	0.0%	27	3.7%	5.0%	3.0%
39	0	N/A	5.0%	5.3%	0	N/A	0.0%	0.0%	75	2.7%	5.0%	3.0%
40	2	50.0%	5.0%	5.3%	0	N/A	0.0%	0.0%	144	1.4%	5.0%	3.1%
41	3	0.0%	5.0%	5.3%	0	N/A	0.0%	0.0%	229	2.2%	5.0%	3.1%
42	12	8.3%	5.0%	5.3%	0	N/A	0.0%	0.0%	341	1.8%	5.0%	3.1%
43	30	0.0%	5.0%	5.3%	0	N/A	0.0%	0.0%	539	1.3%	5.0%	3.2%
44	72	0.0%	5.0%	5.3%	0	N/A	0.0%	0.0%	714	0.8%	5.0%	3.3%
45	127	2.4%	5.0%	5.3%	1	0.0%	0.0%	0.0%	922	2.6%	5.0%	3.3%
46	199	2.0%	5.0%	5.3%	1	0.0%	0.0%	0.0%	1,069	1.9%	5.0%	3.5%
47	287	3.8%	5.0%	5.3%	1	0.0%	0.0%	0.0%	1,209	2.3%	5.0%	3.6%
48	419	4.3%	8.0%	5.3%	12	50.0%	20.0%	35.0%	1,388	2.4%	8.1%	4.0%
49	587	4.8%	8.0%	5.3%	45	57.8%	20.0%	35.0%	1,578	4.1%	8.3%	4.8%
50	755	5.3%	10.0%	7.5%	59	45.8%	20.0%	35.0%	1,772	4.7%	10.3%	6.3%
51	891	6.6%	10.0%	8.5%	89	49.4%	20.0%	35.0%	1,890	6.3%	10.5%	7.3%
52	952	7.4%	10.0%	8.5%	146	52.7%	20.0%	35.0%	1,983	8.6%	10.7%	9.1%
53	926	10.9%	10.0%	10.5%	235	43.4%	20.0%	35.0%	2,010	11.2%	11.2%	11.7%
54	903	31.8%	25.0%	28.0%	316	42.1%	25.0%	35.0%	2,074	23.1%	25.0%	21.6%
55	637	59.7%	60.0%	60.0%	357	36.1%	60.0%	48.0%	1,786	33.7%	41.4%	36.3%
56	295	25.1%	20.0%	23.0%	334	15.9%	20.0%	19.5%	1,406	13.4%	18.9%	16.1%
57	303	24.8%	20.0%	23.0%	418	18.4%	20.0%	19.5%	1,468	15.7%	19.0%	16.4%
58	350	29.4%	20.0%	23.0%	545	21.3%	20.0%	19.5%	1,605	17.6%	19.1%	16.9%
59	370	24.6%	20.0%	23.0%	653	18.4%	20.0%	19.5%	1,743	23.6%	19.2%	23.8%
60	321	21.5%	35.0%	28.0%	641	20.0%	35.0%	28.0%	3,093	28.0%	35.0%	30.8%
61	263	16.0%	18.0%	16.5%	600	19.5%	18.0%	16.5%	2,374	13.9%	18.0%	16.1%
62	228	18.4%	17.0%	16.5%	556	20.3%	17.0%	16.5%	2,275	14.9%	17.0%	16.0%
63	271	18.1%	15.0%	14.5%	506	18.2%	15.0%	14.5%	2,245	13.1%	15.0%	14.4%
64	344	17.4%	17.0%	18.0%	453	20.5%	17.0%	18.0%	2,311	16.0%	17.0%	17.5%
65	280	18.9%	20.0%	18.0%	387	24.3%	20.0%	18.0%	1,956	18.5%	20.0%	18.0%
66	219	21.9%	18.0%	20.0%	311	25.1%	18.0%	20.0%	1,542	21.6%	18.0%	19.8%
67	188	19.1%	18.0%	18.5%	254	20.5%	18.0%	18.5%	1,195	18.1%	18.0%	18.2%
68	134	11.2%	18.0%	18.5%	231	17.3%	18.0%	18.5%	946	16.6%	18.0%	18.2%
69	118	12.7%	18.0%	18.5%	199	16.6%	18.0%	18.5%	774	17.4%	18.0%	18.3%
70	93	17.2%	18.0%	18.5%	175	20.6%	18.0%	18.5%	625	18.7%	18.0%	18.3%
71	83	15.7%	18.0%	18.5%	145	23.4%	18.0%	18.5%	499	16.2%	18.0%	18.3%
72	68	26.5%	18.0%	18.5%	109	16.5%	18.0%	18.5%	405	20.0%	18.0%	18.3%
73	61	29.5%	18.0%	18.5%	81	14.8%	18.0%	18.5%	318	20.8%	18.0%	18.4%
74	38	13.2%	18.0%	18.5%	70	22.9%	18.0%	18.5%	238	18.1%	18.0%	18.4%
75+	110	16.4%	100.0%	100.0%	263	24.3%	100.0%	100.0%	686	21.1%	100.0%	100.0%
Total	10,939	17.0%	18.1%	17.9%	8,193	23.6%	24.5%	24.7%	47,454	14.6%	18.2%	16.7%

Retirement/DROP Rates – Judges																
	< 12 Years of Service				12-17 Years of Service				18+ Years of Service				Total (Aggregate)			
Age	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate
38	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	0	N/A	6.8%	8.6%	0	N/A	6.8%	8.6%
39	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	0	N/A	6.8%	8.6%	0	N/A	6.8%	8.6%
40	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	0	N/A	6.8%	8.6%	0	N/A	6.8%	8.6%
41	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	0	N/A	6.8%	8.6%	0	N/A	6.8%	8.6%
42	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	0	N/A	6.8%	8.6%	0	N/A	6.8%	8.6%
43	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	1	0.0%	6.8%	8.6%	1	0.0%	6.8%	8.6%
44	0	N/A	0.0%	0.0%	0	N/A	0.0%	0.0%	3	0.0%	6.8%	8.6%	3	0.0%	6.8%	8.6%
45	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	3	0.0%	6.8%	8.6%	4	0.0%	5.1%	6.5%
46	0	N/A	0.0%	0.0%	2	50.0%	0.0%	0.0%	7	14.3%	6.8%	8.6%	9	22.2%	5.3%	6.7%
47	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	7	0.0%	6.8%	8.6%	8	0.0%	6.0%	7.5%
48	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	11	9.1%	6.8%	8.6%	12	8.3%	6.2%	7.9%
49	0	N/A	0.0%	0.0%	2	0.0%	0.0%	0.0%	9	11.1%	6.8%	8.6%	11	9.1%	5.6%	7.0%
50	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	17	11.8%	6.8%	8.6%	18	11.1%	6.4%	8.1%
51	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	20	5.0%	6.8%	8.6%	21	4.8%	6.8%	8.2%
52	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	22	4.5%	6.8%	8.6%	23	4.3%	6.8%	8.2%
53	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	23	0.0%	6.8%	8.6%	24	0.0%	6.5%	8.2%
54	0	N/A	0.0%	0.0%	1	0.0%	0.0%	0.0%	33	12.1%	6.8%	8.6%	34	11.8%	6.6%	8.3%
55	0	N/A	0.0%	0.0%	13	0.0%	20.8%	6.5%	34	5.9%	11.5%	12.4%	47	4.3%	14.1%	10.8%
56	0	N/A	0.0%	0.0%	13	0.0%	9.0%	6.5%	34	11.8%	11.5%	12.4%	47	8.5%	10.8%	10.8%
57	4	0.0%	0.0%	0.0%	13	7.7%	9.0%	6.5%	40	12.5%	11.5%	12.4%	57	10.5%	10.1%	10.2%
58	3	0.0%	0.0%	0.0%	19	0.0%	9.0%	6.5%	47	12.8%	11.5%	12.4%	69	8.7%	10.5%	10.2%
59	2	0.0%	0.0%	0.0%	18	5.6%	9.0%	6.5%	47	10.6%	11.5%	12.4%	67	9.0%	10.6%	10.4%
60	9	0.0%	10.8%	6.8%	16	12.5%	9.0%	6.5%	46	21.7%	23.8%	23.2%	71	16.9%	18.8%	17.4%
61	8	0.0%	10.8%	6.8%	17	0.0%	9.0%	6.5%	32	9.4%	17.3%	10.9%	57	5.3%	13.9%	9.0%
62	8	0.0%	10.8%	6.8%	18	5.6%	9.0%	6.5%	28	0.0%	17.3%	10.9%	54	1.9%	13.6%	8.8%
63	8	0.0%	10.8%	6.8%	17	11.8%	9.0%	6.5%	34	5.9%	17.3%	10.9%	59	6.8%	14.0%	9.1%
64	10	10.0%	10.8%	6.8%	10	10.0%	9.0%	6.5%	44	18.2%	17.3%	10.9%	64	15.6%	15.0%	9.6%
65	15	6.7%	10.8%	6.8%	9	11.1%	18.2%	6.5%	43	9.3%	17.3%	10.9%	67	9.0%	16.0%	9.4%
66	12	16.7%	10.8%	6.8%	12	16.7%	10.5%	16.3%	45	11.1%	12.2%	15.4%	69	13.0%	11.7%	14.1%
67	8	0.0%	10.8%	6.8%	8	0.0%	10.5%	16.3%	38	13.2%	12.2%	15.4%	54	9.3%	11.7%	14.3%
68	10	0.0%	10.8%	6.8%	4	0.0%	10.5%	16.3%	34	5.9%	12.2%	15.4%	48	4.2%	11.8%	13.7%
69	8	12.5%	10.8%	6.8%	5	0.0%	10.5%	16.3%	37	13.5%	12.2%	15.4%	50	12.0%	11.8%	14.1%
70	4	25.0%	10.8%	6.8%	10	10.0%	10.5%	16.3%	25	28.0%	12.2%	15.4%	39	23.1%	11.6%	14.7%
71	2	0.0%	10.8%	6.8%	7	42.9%	10.5%	16.3%	22	18.2%	12.2%	15.4%	31	22.6%	11.7%	15.0%
72	1	0.0%	10.8%	6.8%	5	40.0%	10.5%	16.3%	20	15.0%	54.5%	30.3%	26	19.2%	44.4%	26.7%
73	0	N/A	10.8%	6.8%	3	0.0%	10.5%	16.3%	20	25.0%	54.5%	30.3%	23	21.7%	48.8%	28.5%
74	1	0.0%	10.8%	6.8%	5	20.0%	10.5%	16.3%	12	58.3%	54.5%	30.3%	18	44.4%	39.9%	25.1%
75+	1	100.0%	100.0%	100.0%	1	0.0%	100.0%	100.0%	25	44.0%	100.0%	100.0%	27	44.4%	100.0%	100.0%
Total	114	6.1%	10.9%	7.1%	235	8.1%	10.4%	9.0%	863	13.2%	17.8%	16.3%	1,212	11.6%	15.7%	14.0%

Retirement/DROP Rates – Corr/Haz, WL												
	< 20 Years of Service				20+ Years of Service				All Years of Service			
Age	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate	Exposure	Actual Rate	Expected Rate	Proposed Rate
38	0	N/A	N/A	0.0%	0	N/A	N/A	10.0%	0	N/A	N/A	10.0%
39	0	N/A	N/A	0.0%	1	0.0%	N/A	10.0%	1	0.0%	N/A	10.0%
40	0	N/A	N/A	0.0%	3	0.0%	N/A	10.0%	3	0.0%	N/A	10.0%
41	1	0.0%	11.0%	0.0%	3	33.3%	11.0%	10.0%	4	25.0%	11.0%	7.5%
42	0	N/A	N/A	0.0%	4	0.0%	N/A	10.0%	4	0.0%	N/A	10.0%
43	1	100.0%	23.5%	0.0%	17	29.4%	23.5%	27.2%	18	33.3%	23.5%	25.7%
44	0	N/A	N/A	0.0%	34	29.4%	23.5%	27.2%	34	29.4%	23.5%	27.2%
45	1	0.0%	23.5%	0.0%	38	21.1%	23.5%	27.2%	39	20.5%	23.5%	26.5%
46	0	N/A	N/A	0.0%	47	27.7%	23.5%	27.2%	47	27.7%	23.5%	27.2%
47	0	N/A	N/A	0.0%	54	33.3%	23.5%	27.2%	54	33.3%	23.5%	27.2%
48	0	N/A	N/A	0.0%	52	23.1%	23.5%	27.2%	52	23.1%	23.5%	27.2%
49	0	N/A	N/A	0.0%	74	33.8%	23.5%	27.2%	74	33.8%	23.5%	27.2%
50	0	N/A	N/A	0.0%	111	34.2%	23.5%	27.2%	111	34.2%	23.5%	27.2%
51	0	N/A	N/A	0.0%	101	31.7%	23.5%	27.2%	101	31.7%	23.5%	27.2%
52	1	0.0%	23.5%	0.0%	94	26.6%	23.5%	27.2%	95	26.3%	23.5%	26.9%
53	0	N/A	N/A	0.0%	103	26.2%	23.5%	27.2%	103	26.2%	23.5%	27.2%
54	0	N/A	N/A	0.0%	97	37.1%	23.5%	27.2%	97	37.1%	23.5%	27.2%
55	28	28.6%	23.5%	23.8%	100	31.0%	23.5%	27.2%	128	30.5%	23.5%	26.5%
56	30	20.0%	23.5%	23.8%	97	29.9%	23.5%	27.2%	127	27.6%	23.5%	26.4%
57	18	5.6%	23.5%	17.4%	72	30.6%	23.5%	27.2%	90	25.6%	23.5%	25.2%
58	16	0.0%	28.9%	17.4%	76	25.0%	28.9%	27.2%	92	20.7%	28.9%	25.5%
59	17	17.6%	28.9%	17.4%	81	32.1%	28.9%	27.2%	98	29.6%	28.9%	25.5%
60	86	26.7%	36.9%	30.7%	95	31.6%	36.9%	30.7%	181	29.3%	36.9%	30.7%
61	67	20.9%	24.0%	21.8%	71	36.6%	24.0%	21.8%	138	29.0%	24.0%	21.8%
62	52	11.5%	19.6%	21.8%	50	18.0%	19.6%	21.8%	102	14.7%	19.6%	21.8%
63	44	22.7%	19.6%	21.8%	57	22.8%	19.6%	21.8%	101	22.8%	19.6%	21.8%
64	41	17.1%	20.5%	21.8%	49	20.4%	19.6%	21.8%	90	18.9%	20.0%	21.8%
65	34	17.6%	19.6%	21.8%	45	24.4%	19.6%	21.8%	79	21.5%	19.6%	21.8%
66	25	32.0%	20.6%	21.8%	36	30.6%	19.6%	21.8%	61	31.1%	20.0%	21.8%
67	24	20.8%	20.1%	21.8%	27	25.9%	19.6%	21.8%	51	23.5%	19.9%	21.8%
68	17	17.6%	19.6%	21.8%	24	29.2%	19.6%	21.8%	41	24.4%	19.6%	21.8%
69	17	17.6%	19.6%	21.8%	16	12.5%	19.6%	21.8%	33	15.2%	19.6%	21.8%
70	11	27.3%	19.6%	21.8%	12	25.0%	19.6%	21.8%	23	26.1%	19.6%	21.8%
71	8	12.5%	19.6%	21.8%	8	25.0%	19.6%	21.8%	16	18.8%	19.6%	21.8%
72	3	66.7%	19.6%	21.8%	8	37.5%	19.6%	21.8%	11	45.5%	19.6%	21.8%
73	3	33.3%	19.6%	21.8%	5	20.0%	19.6%	21.8%	8	25.0%	19.6%	21.8%
74	2	50.0%	19.6%	21.8%	3	33.3%	19.6%	21.8%	5	40.0%	19.6%	21.8%
75+	8	25.0%	100.0%	100.0%	3	66.7%	100.0%	100.0%	11	36.4%	100.0%	100.0%
Total	555	20.5%	25.2%	24.0%	1,768	29.1%	24.0%	26.1%	2,323	27.1%	24.3%	25.6%

WITHDRAWAL/TERMINATION RATE TABLES

Withdrawal Experience – Rank & File												
	Service < 1 Year				Service = 1 Year				Service = 2, 3 Years			
Age	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates
<20	169	46.2%	50.0%	50.0%	6	16.7%	55.0%	33.3%	0	N/A	33.0%	22.5%
20	274	54.0%	50.0%	50.0%	90	30.0%	38.0%	33.3%	3	0.0%	33.0%	22.5%
21	401	45.4%	50.0%	50.0%	154	35.1%	32.0%	33.3%	57	21.1%	33.0%	22.5%
22	500	43.4%	44.0%	44.0%	228	31.6%	30.0%	33.3%	160	22.5%	24.0%	22.5%
23	688	35.8%	38.0%	35.0%	340	28.8%	30.0%	28.5%	242	21.9%	24.0%	22.0%
24	814	34.8%	32.5%	35.0%	517	27.3%	27.0%	28.5%	339	20.1%	20.0%	22.0%
25	814	34.0%	32.5%	35.0%	588	27.2%	27.0%	28.5%	576	22.4%	20.0%	22.0%
26	715	29.7%	32.5%	30.0%	649	25.1%	27.0%	26.0%	768	20.1%	20.0%	22.0%
27	698	31.9%	29.0%	30.0%	598	25.6%	27.0%	26.0%	871	17.2%	20.0%	18.0%
28	646	31.3%	29.0%	30.0%	579	24.4%	27.0%	26.0%	868	19.1%	20.0%	18.0%
29	624	29.5%	29.0%	30.0%	530	21.9%	23.0%	22.0%	852	17.1%	18.0%	18.0%
30	584	30.3%	29.0%	30.0%	506	18.4%	23.0%	22.0%	807	16.5%	18.0%	18.0%
31	553	27.3%	29.0%	30.0%	498	21.5%	23.0%	22.0%	774	15.5%	18.0%	15.5%
32	515	33.0%	29.0%	30.0%	487	19.5%	23.0%	22.0%	789	15.5%	18.0%	15.5%
33	522	29.1%	29.0%	30.0%	441	23.4%	23.0%	22.0%	762	15.0%	18.0%	15.5%
34	447	27.7%	29.0%	25.0%	419	19.1%	22.0%	22.0%	711	13.6%	18.0%	15.5%
35	493	28.6%	29.0%	25.0%	368	17.7%	22.0%	18.5%	695	14.5%	18.0%	15.5%
36	414	24.4%	29.0%	25.0%	411	17.0%	22.0%	18.5%	638	13.2%	18.0%	15.5%
37	463	26.8%	29.0%	25.0%	369	17.9%	22.0%	18.5%	611	16.4%	15.0%	15.5%
38	402	27.1%	29.0%	25.0%	405	17.3%	18.0%	18.5%	572	14.9%	15.0%	15.5%
39	400	24.8%	28.0%	25.0%	345	17.7%	18.0%	18.5%	608	13.2%	15.0%	14.0%
40	384	22.4%	28.0%	25.0%	340	17.1%	18.0%	18.5%	577	13.5%	15.0%	14.0%
41	345	23.2%	28.0%	25.0%	331	16.0%	18.0%	18.5%	536	13.8%	15.0%	14.0%
42	343	24.5%	28.0%	25.0%	296	14.9%	18.0%	18.5%	513	11.7%	14.0%	12.0%
43	330	21.5%	25.0%	25.0%	281	16.7%	18.0%	18.5%	491	9.8%	14.0%	12.0%
44	307	26.1%	25.0%	25.0%	307	15.6%	18.0%	18.5%	461	11.5%	14.0%	12.0%
45	289	24.2%	25.0%	25.0%	266	23.3%	18.0%	18.5%	450	9.6%	14.0%	12.0%
46	287	23.0%	25.0%	25.0%	251	13.1%	18.0%	15.5%	445	10.1%	14.0%	12.0%
47	300	19.3%	25.0%	25.0%	240	15.4%	18.0%	15.5%	405	14.3%	12.5%	12.0%
48	283	25.4%	25.0%	25.0%	267	14.6%	18.0%	15.5%	413	11.9%	12.5%	12.0%
49	282	25.5%	25.0%	25.0%	263	16.7%	18.0%	15.5%	422	10.7%	12.5%	12.0%
50	285	26.7%	25.0%	25.0%	249	13.3%	18.0%	15.5%	428	11.9%	12.5%	12.0%
51	231	22.9%	25.0%	25.0%	231	14.3%	18.0%	15.5%	413	11.4%	12.5%	12.0%
52	259	25.5%	25.0%	25.0%	215	14.0%	18.0%	15.5%	411	11.9%	11.5%	12.0%
53	233	24.0%	25.0%	25.0%	220	16.4%	18.0%	15.5%	365	13.4%	11.5%	12.0%
54	209	21.5%	25.0%	25.0%	199	15.6%	18.0%	15.5%	343	9.3%	11.5%	12.0%
55	213	24.9%	20.0%	25.0%	202	15.3%	18.0%	15.5%	355	7.9%	11.5%	12.0%
56	200	26.0%	20.0%	25.0%	190	13.7%	18.0%	15.5%	338	10.9%	11.5%	12.0%
57	170	21.2%	20.0%	25.0%	156	10.9%	18.0%	15.5%	311	11.9%	11.5%	12.0%
58	152	27.0%	20.0%	25.0%	152	10.5%	18.0%	15.5%	273	11.0%	11.5%	12.0%
59	110	26.4%	20.0%	25.0%	137	17.5%	18.0%	15.5%	252	8.7%	11.5%	12.0%
60+	475	24.6%	20.0%	25.0%	452	14.4%	18.0%	15.5%	1,039	11.6%	11.5%	12.0%
Total	16,823	29.5%	29.8%	29.6%	13,773	19.9%	22.1%	21.0%	20,944	14.4%	15.9%	15.0%

Withdrawal Experience – Rank & File (cont.)																
	Service = 4, 5, 6 Years				Service = 7, 8, 9 Years				Service = 10+ Years				TOTAL			
Age	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates
<20	0	N/A	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.30%	175	45.1%	50.2%	49.4%
20	0	N/A	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.3%	367	47.7%	46.9%	45.7%
21	0	N/A	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.3%	612	40.5%	43.9%	43.2%
22	1	0.0%	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.3%	889	36.6%	36.8%	37.4%
23	35	5.7%	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.3%	1,305	30.6%	32.9%	30.5%
24	101	22.8%	23.0%	20.0%	0	N/A	10.5%	13.0%	0	N/A	8.0%	5.3%	1,771	29.1%	28.0%	29.8%
25	169	13.0%	16.0%	18.0%	1	0.0%	10.5%	13.0%	0	N/A	8.0%	5.3%	2,148	27.4%	26.3%	28.4%
26	252	19.0%	16.0%	18.0%	25	12.0%	10.5%	13.0%	0	N/A	8.0%	5.3%	2,409	24.1%	25.1%	24.9%
27	421	10.2%	16.0%	13.0%	43	14.0%	10.5%	13.0%	0	N/A	8.0%	5.3%	2,631	21.9%	23.2%	22.1%
28	622	13.8%	16.0%	13.0%	81	12.3%	10.5%	13.0%	1	0.0%	8.0%	5.3%	2,797	21.6%	22.4%	21.2%
29	766	12.3%	16.0%	13.0%	136	5.9%	10.5%	7.3%	18	11.1%	8.0%	5.3%	2,926	18.8%	20.3%	19.4%
30	864	12.8%	13.3%	13.0%	250	9.6%	10.5%	7.3%	52	5.8%	8.0%	5.3%	3,063	17.7%	18.8%	18.4%
31	850	11.9%	13.3%	13.0%	384	5.5%	8.0%	7.3%	87	4.6%	8.0%	5.3%	3,146	16.0%	18.0%	17.1%
32	825	12.1%	13.3%	13.0%	505	7.3%	8.0%	7.3%	164	3.0%	8.0%	5.3%	3,285	16.1%	17.2%	16.3%
33	839	11.1%	13.3%	13.0%	588	6.5%	8.0%	7.3%	298	5.4%	8.0%	5.3%	3,450	15.0%	16.6%	15.6%
34	848	11.0%	13.3%	13.0%	615	6.8%	8.0%	7.3%	528	3.2%	5.5%	4.3%	3,568	12.7%	15.2%	13.8%
35	844	11.1%	13.3%	13.0%	598	6.0%	8.0%	7.3%	763	4.7%	5.5%	4.3%	3,761	12.6%	14.7%	12.9%
36	791	9.4%	13.3%	10.5%	598	7.4%	8.0%	7.3%	1,022	3.7%	5.5%	4.3%	3,874	10.6%	13.8%	11.6%
37	717	8.1%	13.3%	10.5%	581	4.8%	8.0%	7.3%	1,302	3.7%	5.5%	4.3%	4,043	10.5%	12.9%	11.2%
38	677	9.2%	13.0%	10.5%	536	7.3%	8.0%	7.3%	1,527	3.5%	5.5%	4.3%	4,119	10.2%	11.9%	10.7%
39	659	8.8%	13.0%	10.5%	483	5.4%	8.0%	7.3%	1,721	3.4%	5.5%	4.3%	4,216	9.1%	11.5%	10.1%
40	586	8.2%	13.0%	10.5%	448	5.1%	8.0%	7.3%	1,853	3.1%	5.5%	4.3%	4,188	8.4%	11.2%	9.9%
41	577	8.3%	13.0%	10.5%	422	6.2%	8.0%	7.3%	1,933	2.6%	5.5%	4.3%	4,144	8.0%	10.9%	9.6%
42	563	9.2%	12.5%	10.5%	422	7.6%	8.0%	7.3%	1,957	2.7%	5.5%	4.3%	4,094	7.9%	10.6%	9.2%
43	529	10.6%	12.5%	10.5%	393	6.1%	8.0%	7.3%	1,838	3.0%	5.5%	4.3%	3,862	7.8%	10.4%	9.2%
44	510	10.4%	12.5%	10.5%	374	6.7%	8.0%	7.3%	1,683	2.9%	5.5%	4.3%	3,642	8.4%	10.5%	9.4%
45	497	9.1%	12.5%	10.5%	341	8.5%	8.0%	7.3%	1,555	2.6%	5.0%	4.3%	3,398	8.5%	10.3%	9.4%
46	470	9.1%	12.5%	10.5%	339	4.4%	7.5%	6.5%	1,483	2.4%	5.0%	4.3%	3,275	7.3%	10.3%	9.1%
47	471	8.9%	11.5%	10.5%	333	5.7%	7.5%	6.5%	1,469	2.9%	5.0%	4.3%	3,218	8.0%	10.0%	9.2%
48	461	8.0%	11.5%	10.5%	343	5.2%	7.5%	6.5%	1,427	2.7%	5.0%	4.3%	3,194	8.0%	10.0%	9.2%
49	464	9.9%	11.5%	10.5%	332	7.5%	7.5%	6.5%	1,422	2.7%	5.0%	4.3%	3,185	8.5%	10.0%	9.2%
50	459	8.3%	11.5%	10.5%	331	7.6%	7.5%	6.5%	1,403	3.2%	5.0%	4.3%	3,155	8.5%	10.1%	9.2%
51	464	6.0%	11.5%	8.5%	318	4.7%	7.0%	6.5%	1,364	2.9%	5.0%	4.3%	3,021	7.1%	9.8%	8.7%
52	472	5.9%	11.5%	8.5%	323	4.6%	7.0%	6.5%	1,304	2.9%	5.0%	4.3%	2,984	7.6%	9.8%	8.9%
53	449	5.1%	11.5%	8.5%	323	5.0%	7.0%	6.5%	1,276	2.7%	5.0%	4.3%	2,866	7.5%	9.7%	8.7%
54	411	8.3%	8.5%	8.5%	323	6.2%	7.0%	6.5%	1,264	2.3%	5.0%	4.3%	2,749	6.9%	9.0%	8.5%
55	397	7.6%	8.5%	8.5%	333	4.2%	7.0%	6.5%	1,311	3.2%	5.0%	4.3%	2,811	7.0%	8.6%	8.5%
56	417	5.3%	8.5%	8.5%	332	5.1%	7.0%	6.5%	1,279	2.8%	5.0%	4.3%	2,756	6.9%	8.6%	8.4%
57	384	7.0%	8.5%	8.5%	334	5.7%	7.0%	6.5%	1,306	3.0%	5.0%	4.3%	2,661	6.6%	8.2%	8.1%
58	356	7.3%	8.5%	8.5%	320	3.8%	7.0%	6.5%	1,302	2.2%	5.0%	4.3%	2,555	6.0%	8.1%	7.9%
59	321	5.9%	8.5%	8.5%	337	9.8%	7.0%	6.5%	1,327	13.2%	5.0%	4.3%	2,484	12.2%	7.8%	7.5%
60+	470	11.5%	8.5%	8.5%	56	10.7%	7.0%	6.5%	8	0.0%	5.0%	4.3%	2,500	14.5%	13.6%	14.3%
Total	20,009	9.8%	12.6%	11.2%	12,501	6.3%	7.8%	7.1%	37,247	3.4%	5.3%	4.3%	121,297	12.1%	13.9%	13.0%

Withdrawal Experience – Corr/Haz																
	Service < 1 Year				Service = 1 Year				Service = 2 Years				Service = 3, 4 Years			
Age	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates
<20	144	51.4%	58.0%	56.2%	7	14.3%	50.0%	29.6%	0	N/A	30.0%	32.2%	0	N/A	37.0%	50.0%
20	200	64.0%	58.0%	56.2%	65	32.3%	39.0%	29.6%	6	33.3%	30.0%	32.2%	0	N/A	37.0%	50.0%
21	203	57.1%	58.0%	56.2%	85	35.3%	39.0%	29.6%	39	35.9%	30.0%	32.2%	4	50.0%	37.0%	50.0%
22	202	55.4%	58.0%	56.2%	97	38.1%	39.0%	29.6%	46	26.1%	30.0%	32.2%	26	15.4%	37.0%	16.8%
23	219	53.0%	48.0%	56.2%	87	23.0%	36.0%	29.6%	56	17.9%	30.0%	22.6%	41	14.6%	24.0%	16.8%
24	184	49.5%	48.0%	48.1%	114	32.5%	30.5%	29.6%	73	20.5%	30.0%	22.6%	58	24.1%	24.0%	16.8%
25	186	48.4%	48.0%	48.1%	120	20.8%	30.5%	29.6%	88	18.2%	30.0%	22.6%	94	17.0%	24.0%	16.8%
26	178	50.0%	46.7%	48.1%	132	30.3%	30.5%	29.6%	101	19.8%	24.0%	22.6%	120	14.2%	20.5%	16.8%
27	154	48.1%	46.7%	48.1%	111	27.0%	30.5%	29.6%	99	28.3%	24.0%	22.6%	154	11.7%	20.5%	16.8%
28	149	45.6%	46.7%	48.1%	103	27.2%	30.5%	29.6%	85	22.4%	24.0%	22.6%	148	18.9%	20.5%	16.8%
29	152	47.4%	46.7%	48.1%	82	28.0%	30.5%	29.6%	69	18.8%	24.0%	22.6%	116	13.8%	20.0%	16.8%
30	114	39.5%	43.5%	41.1%	97	26.8%	25.5%	29.6%	55	21.8%	24.0%	22.6%	114	12.3%	20.0%	16.8%
31	107	39.3%	43.5%	41.1%	76	27.6%	25.5%	29.6%	69	20.3%	24.0%	22.6%	83	14.5%	20.0%	16.8%
32	87	40.2%	43.5%	41.1%	72	27.8%	25.5%	29.6%	54	16.7%	20.0%	14.4%	82	17.1%	20.0%	16.8%
33	80	43.8%	43.5%	41.1%	64	29.7%	25.5%	29.6%	56	14.3%	20.0%	14.4%	81	13.6%	20.0%	16.8%
34	75	45.3%	43.5%	41.1%	46	21.7%	25.5%	21.4%	39	15.4%	20.0%	14.4%	87	13.8%	20.0%	16.8%
35	84	41.7%	43.5%	41.1%	48	14.6%	25.5%	21.4%	39	15.4%	20.0%	14.4%	69	13.0%	20.0%	16.8%
36	66	34.8%	41.0%	35.2%	68	23.5%	25.5%	21.4%	35	14.3%	20.0%	14.4%	64	15.6%	15.5%	16.8%
37	73	38.4%	41.0%	35.2%	42	35.7%	25.5%	21.4%	51	11.8%	20.0%	14.4%	65	16.9%	15.5%	16.8%
38	83	30.1%	41.0%	35.2%	64	18.8%	25.5%	21.4%	32	12.5%	20.0%	14.4%	80	13.8%	15.5%	16.8%
39	73	37.0%	41.0%	35.2%	53	20.8%	21.0%	21.4%	46	10.9%	20.0%	14.4%	62	14.5%	15.5%	16.8%
40	68	38.2%	41.0%	35.2%	39	12.8%	21.0%	21.4%	39	2.6%	20.0%	14.4%	64	10.9%	15.5%	12.5%
41	58	34.5%	41.0%	35.2%	43	18.6%	21.0%	21.4%	31	9.7%	20.0%	14.4%	70	12.9%	15.5%	12.5%
42	53	28.3%	32.0%	35.5%	39	23.1%	21.0%	21.4%	37	21.6%	20.0%	14.4%	64	6.3%	15.5%	12.5%
43	63	38.1%	32.0%	35.5%	34	14.7%	17.0%	21.4%	30	3.3%	20.0%	14.4%	52	5.8%	15.5%	12.5%
44	51	31.4%	32.0%	35.5%	40	15.0%	17.0%	21.4%	26	19.2%	20.0%	14.4%	60	13.3%	15.5%	12.5%
45	40	35.0%	32.0%	35.5%	38	21.1%	17.0%	21.4%	29	0.0%	12.0%	14.7%	52	7.7%	15.5%	12.5%
46	43	41.9%	32.0%	35.5%	28	28.6%	17.0%	21.4%	25	20.0%	12.0%	14.7%	52	3.8%	15.5%	12.5%
47	39	41.0%	32.0%	35.5%	28	7.1%	17.0%	18.8%	28	17.9%	12.0%	14.7%	47	8.5%	10.0%	12.5%
48	36	36.1%	32.0%	35.5%	32	15.6%	17.0%	18.8%	26	23.1%	12.0%	14.7%	33	15.2%	10.0%	12.5%
49	43	37.2%	27.5%	32.5%	30	23.3%	17.0%	18.8%	32	15.6%	12.0%	14.7%	47	10.6%	10.0%	12.5%
50	42	33.3%	27.5%	32.5%	31	12.9%	17.0%	18.8%	23	8.7%	12.0%	14.7%	44	11.4%	10.0%	12.5%
51	50	32.0%	27.5%	32.5%	29	17.2%	17.0%	18.8%	32	9.4%	12.0%	14.7%	50	14.0%	10.0%	12.5%
52	37	32.4%	27.5%	32.5%	36	13.9%	17.0%	18.8%	30	13.3%	12.0%	14.7%	47	14.9%	10.0%	12.5%
53	37	16.2%	27.5%	32.5%	25	8.0%	17.0%	18.8%	30	23.3%	9.0%	18.0%	49	6.1%	10.0%	12.5%
54	21	38.1%	27.5%	32.5%	33	27.3%	17.0%	18.8%	27	11.1%	9.0%	18.0%	55	9.1%	10.0%	12.5%
55	27	44.4%	27.5%	32.5%	21	23.8%	17.0%	18.8%	21	14.3%	9.0%	18.0%	51	9.8%	10.0%	12.5%
56	25	20.0%	19.0%	22.5%	16	31.3%	17.0%	18.8%	14	7.1%	9.0%	18.0%	39	15.4%	10.0%	12.5%
57	32	25.0%	19.0%	22.5%	25	24.0%	17.0%	18.8%	16	18.8%	9.0%	18.0%	29	6.9%	10.0%	12.5%
58	18	27.8%	19.0%	22.5%	24	16.7%	17.0%	18.8%	19	31.6%	9.0%	18.0%	26	19.2%	10.0%	12.5%
59	16	6.3%	19.0%	22.5%	19	15.8%	17.0%	18.8%	18	5.6%	9.0%	18.0%	23	4.3%	10.0%	12.5%
60+	72	25.0%	19.0%	22.5%	68	19.1%	17.0%	18.8%	72	16.7%	9.0%	18.0%	123	14.6%	10.0%	12.5%
Total	3,684	44.6%	44.2%	44.4%	2,311	24.8%	26.5%	25.6%	1,743	17.7%	20.5%	19.1%	2,625	13.3%	16.9%	15.1%

Withdrawal Experience – Corr/Haz (cont.)																
	Service = 5, 6, 7 Years				Service = 8, 9 Years				Service =10+ Years				TOTAL			
Age	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates	Eligible Members	Actual Term. Rates	Expected Term. Rates	Proposed Term. Rates
<20	0	N/A	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	151	49.7%	57.6%	55.0%
20	0	N/A	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	271	55.7%	52.8%	49.3%
21	0	N/A	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	331	48.9%	49.6%	46.5%
22	0	N/A	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	371	44.5%	48.1%	43.5%
23	2	0.0%	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	405	37.5%	40.3%	41.6%
24	16	6.3%	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	445	35.5%	36.3%	33.9%
25	28	14.3%	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	516	29.3%	34.7%	31.9%
26	47	14.9%	15.5%	13.4%	0	N/A	6.4%	6.8%	0	N/A	2.8%	3.6%	578	29.9%	31.1%	30.1%
27	58	10.3%	15.5%	9.7%	8	12.5%	6.4%	6.8%	0	N/A	2.8%	3.6%	584	26.9%	29.2%	27.6%
28	95	7.4%	13.5%	9.7%	13	7.7%	6.4%	6.8%	1	0.0%	2.8%	3.6%	594	25.4%	27.8%	26.3%
29	118	8.5%	13.5%	9.7%	23	17.4%	6.4%	6.8%	8	0.0%	2.8%	3.6%	568	24.3%	27.0%	25.7%
30	119	9.2%	13.5%	9.7%	22	4.5%	6.4%	6.8%	17	5.9%	2.8%	3.6%	538	20.4%	23.8%	22.5%
31	119	10.9%	10.0%	9.7%	38	10.5%	6.4%	6.8%	27	0.0%	2.8%	3.6%	519	20.4%	22.0%	21.4%
32	99	9.1%	10.0%	9.7%	55	7.3%	6.4%	6.8%	48	2.1%	2.8%	3.6%	497	18.5%	19.8%	18.9%
33	90	8.9%	10.0%	9.7%	53	7.5%	6.4%	6.8%	90	5.6%	2.8%	3.6%	514	17.5%	18.2%	17.3%
34	86	15.1%	10.0%	9.7%	50	6.0%	6.4%	6.8%	111	2.7%	2.8%	3.6%	494	16.4%	17.1%	15.5%
35	86	4.7%	10.0%	9.7%	46	13.0%	6.4%	6.8%	136	3.7%	2.8%	3.6%	508	14.2%	16.9%	15.4%
36	87	6.9%	10.0%	9.7%	41	9.8%	6.4%	6.8%	184	1.1%	2.8%	3.6%	545	12.1%	14.3%	13.1%
37	87	9.2%	10.0%	9.7%	40	5.0%	6.4%	6.8%	221	4.1%	2.8%	3.6%	579	13.6%	13.5%	12.4%
38	74	8.1%	10.0%	9.7%	49	6.1%	6.4%	6.8%	246	3.7%	2.8%	3.6%	628	11.1%	13.8%	12.8%
39	74	8.1%	10.0%	9.7%	32	9.4%	6.4%	6.8%	289	1.4%	2.8%	3.6%	629	10.3%	12.3%	11.7%
40	57	1.8%	9.0%	9.7%	33	12.1%	6.4%	6.8%	321	1.9%	2.8%	3.6%	621	8.1%	11.3%	10.5%
41	61	6.6%	9.0%	9.7%	27	3.7%	6.4%	6.8%	320	2.5%	2.8%	3.6%	610	8.7%	10.8%	10.2%
42	52	15.4%	9.0%	9.7%	32	9.4%	6.4%	6.8%	340	4.1%	2.8%	3.6%	617	9.9%	9.5%	9.7%
43	53	7.5%	9.0%	9.7%	21	23.8%	6.4%	6.8%	329	4.6%	2.8%	3.6%	582	9.8%	9.5%	10.1%
44	49	10.2%	9.0%	9.7%	21	9.5%	6.4%	6.8%	323	4.3%	2.8%	3.6%	570	9.8%	9.2%	9.8%
45	51	5.9%	9.0%	9.7%	22	0.0%	6.4%	6.8%	330	4.5%	2.8%	3.6%	562	7.8%	8.2%	9.1%
46	56	5.4%	9.0%	9.7%	25	0.0%	6.4%	6.8%	336	3.6%	2.8%	3.6%	565	8.5%	8.1%	9.0%
47	57	10.5%	9.0%	9.7%	22	4.5%	6.4%	6.8%	342	2.6%	2.8%	3.6%	563	7.6%	7.4%	8.6%
48	60	10.0%	9.0%	9.7%	26	3.8%	6.4%	6.8%	353	5.1%	2.8%	3.6%	566	9.5%	7.1%	8.3%
49	53	0.0%	9.0%	9.7%	25	8.0%	6.4%	6.8%	333	4.5%	2.8%	3.6%	563	8.9%	7.3%	8.7%
50	65	6.2%	9.0%	9.7%	28	7.1%	6.4%	6.8%	298	6.0%	2.8%	3.6%	531	9.2%	7.5%	8.9%
51	59	11.9%	9.0%	9.7%	24	4.2%	6.4%	6.8%	269	3.3%	2.8%	3.6%	513	9.4%	8.2%	9.7%
52	56	7.1%	9.0%	9.7%	29	10.3%	6.4%	6.8%	246	5.7%	2.8%	3.6%	481	10.2%	8.0%	9.4%
53	48	18.8%	9.0%	9.7%	32	0.0%	6.4%	6.8%	226	5.3%	2.8%	3.6%	447	8.7%	7.8%	9.7%
54	42	11.9%	9.0%	9.7%	26	0.0%	6.4%	6.8%	235	8.9%	2.8%	3.6%	439	11.6%	7.1%	8.9%
55	46	10.9%	9.0%	9.7%	28	7.1%	6.4%	6.8%	161	3.7%	2.8%	3.6%	355	10.7%	8.0%	9.9%
56	54	9.3%	9.0%	9.7%	20	0.0%	6.4%	6.8%	151	6.0%	2.8%	3.6%	319	9.7%	7.2%	8.8%
57	47	10.6%	9.0%	9.7%	25	8.0%	6.4%	6.8%	154	6.5%	2.8%	3.6%	328	11.0%	7.6%	9.2%
58	37	8.1%	9.0%	9.7%	24	0.0%	6.4%	6.8%	154	5.8%	2.8%	3.6%	302	10.6%	6.9%	8.6%
59	28	10.7%	9.0%	9.7%	21	9.5%	6.4%	6.8%	144	20.8%	2.8%	3.6%	269	15.2%	6.7%	8.4%
60+	149	14.8%	9.0%	9.7%	79	7.6%	6.4%	6.8%	21	14.3%	2.8%	3.6%	584	15.8%	10.8%	13.3%
Total	2,465	9.4%	10.3%	9.8%	1,060	7.3%	6.4%	6.8%	6,764	4.5%	2.8%	3.6%	20,652	16.9%	17.2%	17.0%

MORTALITY RATE TABLES

General Active Member Mortality - Males							General Active Member Mortality - Females					
Age	Salary Exposed	Actual Deaths (Salaries)	Expected Deaths (Salaries)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Salary Exposed	Actual Deaths (Salaries)	Expected Deaths (Salaries)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
<20	1,895,961	-	911	0.000%	0.048%	0.040%	2,099,433	0	459	0.000%	0.022%	0.013%
20-24	61,586,878	40,852	40,622	0.066%	0.066%	0.034%	68,169,670	0	15,555	0.000%	0.023%	0.010%
25-29	176,957,540	36,658	113,781	0.021%	0.064%	0.033%	264,228,060	0	71,797	0.000%	0.027%	0.012%
30-34	250,876,983	181,821	180,032	0.072%	0.072%	0.042%	430,768,545	68,991	157,221	0.016%	0.037%	0.019%
35-39	340,731,579	269,739	283,393	0.079%	0.083%	0.057%	618,955,925	293,418	293,338	0.047%	0.047%	0.029%
40-44	399,014,824	255,223	407,906	0.064%	0.102%	0.082%	744,253,386	361,292	490,663	0.049%	0.066%	0.045%
45-49	450,127,336	846,863	696,700	0.188%	0.155%	0.124%	793,893,743	493,887	830,902	0.062%	0.105%	0.069%
50-54	544,191,743	1,300,291	1,385,309	0.239%	0.255%	0.186%	867,590,072	1,500,851	1,448,426	0.173%	0.167%	0.101%
55-59	486,416,870	1,211,152	2,102,738	0.249%	0.432%	0.270%	715,557,379	970,848	1,844,051	0.136%	0.258%	0.150%
60-64	358,491,301	1,578,677	2,715,032	0.440%	0.757%	0.391%	473,179,662	1,103,136	1,769,150	0.233%	0.374%	0.228%
65-69	213,087,641	1,276,471	2,643,750	0.599%	1.241%	0.566%	231,197,301	733,447	1,271,448	0.317%	0.550%	0.361%
70-74	79,598,196	476,959	1,522,311	0.599%	1.913%	0.855%	72,971,976	280,229	654,668	0.384%	0.897%	0.596%
75-79	18,220,873	423,444	11,237	2.324%	0.062%	0.027%	18,850,041	199,993	4,410	1.061%	0.023%	0.015%
Total	3,381,197,725	7,898,150	12,103,722	0.234%	0.358%	0.204%	5,301,715,193	6,006,092	8,852,086	0.113%	0.167%	0.103%

Public Safety Active Member Mortality - Males							Public Safety Active Member Mortality - Females					
Age	Salary Exposed	Actual Deaths (Salaries)	Expected Deaths (Salaries)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Salary Exposed	Actual Deaths (Salaries)	Expected Deaths (Salaries)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
<20	2,016,332	0	993	0.000%	0.049%	0.044%	1,519,999	0	328	0.000%	0.022%	0.015%
20-24	26,394,179	0	17,366	0.000%	0.066%	0.050%	27,093,693	34,393	6,040	0.127%	0.022%	0.022%
25-29	52,751,087	34,310	34,836	0.065%	0.066%	0.055%	48,278,474	0	12,801	0.000%	0.027%	0.029%
30-34	62,328,874	58,224	45,901	0.093%	0.074%	0.060%	42,930,522	46,971	15,309	0.109%	0.036%	0.040%
35-39	83,311,871	69,066	71,279	0.083%	0.086%	0.071%	53,638,442	0	25,071	0.000%	0.047%	0.054%
40-44	97,970,839	55,248	102,731	0.056%	0.105%	0.094%	62,480,768	0	40,537	0.000%	0.065%	0.073%
45-49	114,564,151	173,140	181,661	0.151%	0.159%	0.134%	56,083,090	0	57,633	0.000%	0.103%	0.100%
50-54	103,663,684	58,947	267,317	0.057%	0.258%	0.194%	54,935,952	43,522	89,957	0.079%	0.164%	0.135%
55-59	68,710,385	358,424	299,269	0.522%	0.436%	0.285%	42,058,600	30,364	106,914	0.072%	0.254%	0.184%
60-64	32,751,658	113,488	247,836	0.347%	0.757%	0.429%	20,355,249	59,052	73,708	0.290%	0.362%	0.244%
65-69	14,782,154	430,188	187,266	2.910%	1.267%	0.705%	6,399,622	36,403	34,616	0.569%	0.541%	0.376%
70-74	3,789,698	0	74,591	0.000%	1.968%	1.316%	2,002,486	0	17,193	0.000%	0.859%	0.723%
75-79	278,819	76,232	3,024	27.341%	1.085%	0.814%	388,588	0	953	0.000%	0.245%	0.241%
Total	663,313,731	1,427,267	1,534,069	0.215%	0.231%	0.163%	418,165,485	250,705	481,059	0.060%	0.115%	0.098%

General Inactive Retiree Mortality - Males							General Inactive Retiree Mortality - Females					
Age	Benefit Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Benefit Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
25-29	70,475	-	59	0.000%	0.084%	0.039%	72,986	1,300	20	1.781%	0.027%	0.015%
30-34	350,479	409	333	0.117%	0.095%	0.050%	535,208	4,442	186	0.830%	0.035%	0.022%
35-39	902,842	2,809	983	0.311%	0.109%	0.066%	1,470,437	1,822	653	0.124%	0.044%	0.033%
40-44	1,125,967	14,726	1,512	1.308%	0.134%	0.095%	2,071,587	10,560	1,280	0.510%	0.062%	0.051%
45-49	2,061,249	10,941	4,235	0.531%	0.206%	0.145%	3,373,490	5,823	3,367	0.173%	0.100%	0.079%
50-54	5,039,559	16,278	30,703	0.323%	0.609%	0.436%	8,774,313	39,230	29,109	0.447%	0.332%	0.308%
55-59	17,156,695	102,653	153,780	0.598%	0.896%	0.619%	33,856,906	116,028	158,365	0.343%	0.468%	0.401%
60-64	30,280,798	340,051	396,338	1.123%	1.309%	0.882%	63,125,941	365,421	454,267	0.579%	0.720%	0.577%
65-69	39,701,492	578,245	775,407	1.456%	1.953%	1.372%	72,536,918	757,369	797,372	1.044%	1.099%	0.953%
70-74	38,490,941	883,244	1,128,845	2.295%	2.933%	2.319%	55,532,713	950,133	951,809	1.711%	1.714%	1.638%
75-79	23,350,719	890,923	1,075,959	3.815%	4.608%	4.027%	30,120,091	872,440	872,345	2.897%	2.896%	2.890%
80-84	14,834,667	971,980	1,146,968	6.552%	7.732%	7.325%	16,636,070	902,160	859,236	5.423%	5.165%	5.228%
85-89	7,794,455	1,038,733	991,302	13.327%	12.718%	12.609%	8,638,840	757,590	812,367	8.770%	9.404%	9.690%
90-94	2,931,242	621,896	611,640	21.216%	20.866%	20.636%	3,967,762	633,473	667,482	15.965%	16.823%	17.113%
95-99	469,219	119,842	142,578	25.541%	30.386%	30.617%	1,030,155	254,255	283,015	24.681%	27.473%	27.011%
100-104	32,982	20,292	13,124	61.524%	39.791%	40.572%	156,340	58,529	62,902	37.437%	40.234%	38.595%
105-109	4,611	943	2,489	20.451%	53.987%	53.507%	6,643	377	3,881	5.675%	58.416%	55.234%
Total	184,598,392	5,613,965	6,476,255	3.041%	3.508%	3.040%	301,906,400	5,730,952	5,957,655	1.898%	1.973%	1.898%

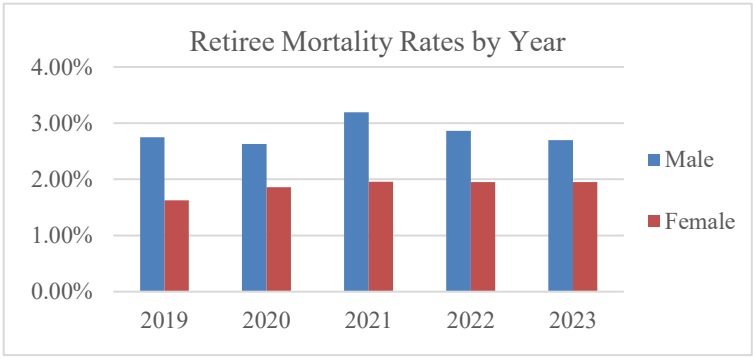
Public Safety Inactive Retiree Mortality - Males							Public Safety Inactive Retiree Mortality – Females					
Age	Benefit Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Benefit Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
25-29	33,169	0	26	0.000%	0.078%	0.056%	6,585	0	2	0.000%	0.024%	0.031%
30-34	93,112	1,300	82	1.396%	0.088%	0.061%	19,931	598	7	3.000%	0.034%	0.044%
35-39	192,966	2,600	196	1.347%	0.102%	0.072%	73,602	0	32	0.000%	0.043%	0.058%
40-44	348,730	6,532	443	1.873%	0.127%	0.096%	105,793	0	64	0.000%	0.061%	0.079%
45-49	1,625,536	8,807	3,206	0.542%	0.197%	0.304%	233,748	2,058	221	0.880%	0.095%	0.122%
50-54	4,493,845	5,845	24,735	0.130%	0.550%	0.424%	945,092	4,587	3,220	0.485%	0.341%	0.215%
55-59	5,372,791	38,307	43,647	0.713%	0.812%	0.614%	1,896,314	3,706	9,290	0.195%	0.490%	0.359%
60-64	5,695,250	47,701	68,247	0.838%	1.198%	0.928%	2,351,965	29,180	16,627	1.241%	0.707%	0.611%
65-69	5,808,056	118,551	104,092	2.041%	1.792%	1.488%	1,700,717	23,996	17,585	1.411%	1.034%	1.040%
70-74	4,274,603	120,581	114,983	2.821%	2.690%	2.528%	1,107,888	9,751	17,962	0.880%	1.621%	1.785%
75-79	1,780,418	73,688	73,746	4.139%	4.142%	4.228%	429,053	7,578	11,204	1.766%	2.611%	2.996%
80-84	508,039	42,967	35,110	8.457%	6.911%	7.366%	173,795	8,819	7,749	5.074%	4.459%	5.200%
85-89	171,698	15,142	19,630	8.819%	11.433%	12.277%	25,843	3,863	1,874	14.948%	7.251%	8.468%
90-94	23,848	2,283	4,530	9.573%	18.997%	19.711%	0	0				
95-99	4,262	0	1,127	0.000%	26.442%	26.141%	0	0				
100-104	0	0					0	0				
105-109	0	0					0	0				
Total	30,426,323	484,304	493,799	1.592%	1.623%	1.461%	9,070,326	94,136	85,837	1.038%	0.946%	0.939%

General - Disabled Retiree Mortality - Males							General - Disabled Retiree Mortality - Females					
Age	Benefits Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Benefits Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
30-34	3,348	-	76	0.000%	2.277%	2.113%	0	0				
35-39	8,416	-	192	0.000%	2.277%	2.113%	7,706	0	60	0.000%	0.777%	0.793%
40-44	35,085	-	799	0.000%	2.277%	2.113%	66,007	1,768	513	2.679%	0.777%	0.793%
45-49	100,028	4,646	2,571	4.645%	2.570%	2.384%	112,852	792	1,101	0.702%	0.976%	0.996%
50-54	266,331	3,855	8,604	1.447%	3.230%	2.997%	428,654	6,152	6,257	1.435%	1.460%	1.490%
55-59	484,417	13,976	18,687	2.885%	3.858%	3.578%	971,087	21,156	19,131	2.179%	1.970%	2.011%
60-64	741,192	20,580	33,922	2.777%	4.577%	4.245%	1,542,580	40,702	39,271	2.639%	2.546%	2.598%
65-69	910,959	25,030	50,170	2.748%	5.507%	5.109%	1,820,424	60,775	59,447	3.339%	3.266%	3.333%
70-74	650,962	45,604	45,078	7.006%	6.925%	6.423%	1,235,535	68,942	55,059	5.580%	4.456%	4.549%
75-79	364,120	26,798	33,674	7.360%	9.248%	8.578%	780,382	56,607	47,752	7.254%	6.119%	6.246%
80-84	216,358	17,999	26,139	8.319%	12.081%	11.206%	435,843	28,816	37,005	6.612%	8.490%	8.666%
85-89	114,345	17,022	17,595	14.887%	15.388%	14.274%	202,475	25,856	23,700	12.770%	11.705%	11.947%
90-94	17,608	5,825	3,794	33.082%	21.550%	19.989%	62,603	17,356	10,101	27.724%	16.136%	16.469%
95-99	2,120	2,120	572	100.000%	26.990%	25.035%	13,525	7,450	2,888	55.083%	21.354%	21.796%
100-104	0	0					1,604	802	403	50.000%	25.152%	25.672%
<Total>	3,915,289	183,455	241,873	4.686%	6.178%	5.730%	7,681,277	337,174	302,690	4.390%	3.941%	4.022%

Public Safety - Disabled Retiree Mortality - Males							Public Safety - Disabled Retiree Mortality – Females					
Age	Benefits Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Exposed Members	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
30-34	0	0					0	0				
35-39	17,770	962	405	5.414%	2.277%	2.207%	4,824	0	37	0.000%	0.777%	0.747%
40-44	19,596	0	446	0.000%	2.277%	2.207%	18,744	0	146	0.000%	0.777%	0.747%
45-49	68,447	2,279	1,755	3.330%	2.563%	2.484%	32,007	0	326	0.000%	1.017%	0.978%
50-54	145,555	5,044	4,690	3.465%	3.222%	3.122%	81,551	2,115.00	1,130	2.593%	1.386%	1.332%
55-59	145,611	1,673	5,583	1.149%	3.834%	3.715%	101,841	2,941.00	1,973	2.888%	1.937%	1.862%
60-64	126,804	2,364	5,735	1.864%	4.523%	4.382%	98,121	0	2,452	0.000%	2.499%	2.402%
65-69	99,926	4,362	5,511	4.365%	5.516%	5.344%	69,439	4,467.00	2,236	6.433%	3.220%	3.095%
70-74	85,094	7,810	5,851	9.178%	6.876%	6.662%	18,893	0	816	0.000%	4.320%	4.152%
75-79	19,944	0	1,774	0.000%	8.895%	8.618%	0	0				
80-84	5,022	0	586	0.000%	11.664%	11.301%	3,534	0	324	0.000%	9.176%	8.819%
85-89	0	0					1,178	0	123	0.000%	10.451%	10.045%
90-94	0	0					0	0				
95-99	0	0					0	0				
Total	733,769	24,494	32,335	3.338%	4.407%	4.270%	430,132	9,523	9,563	2.214%	2.223%	2.137%

Beneficiaries/Survivors Mortality - Males							Beneficiaries/Survivors Mortality - Females					
Age	Benefits Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates	Benefits Exposed	Actual Deaths (Benefits)	Expected Deaths (Benefits)	Actual Death Rate	Current Expected Mortality Rates	Proposed Expected Mortality Rates
<20	457,141	3,571	118	0.781%	0.026%	0.012%	515,362	4,233	63	0.821%	0.012%	0.006%
20-24	300,090	7,419	248	2.472%	0.083%	0.141%	348,467	11,381	73	3.266%	0.021%	0.065%
25-29	270,958	5,921	228	2.185%	0.084%	0.263%	293,149	5,797	73	1.977%	0.025%	0.111%
30-34	340,132	3,842	320	1.130%	0.094%	0.386%	512,071	6,430	174	1.256%	0.034%	0.177%
35-39	420,787	14,558	457	3.460%	0.109%	0.501%	419,895	13,757	184	3.276%	0.044%	0.232%
40-44	358,323	9,779	479	2.729%	0.134%	0.623%	395,832	8,012	241	2.024%	0.061%	0.285%
45-49	341,077	7,104	686	2.083%	0.201%	0.754%	404,278	7,102	394	1.757%	0.098%	0.340%
50-54	279,235	5,574	1,612	1.996%	0.578%	0.940%	607,002	13,130	1,981	2.163%	0.326%	0.423%
55-59	314,557	6,942	2,828	2.207%	0.899%	1.141%	1,330,867	10,903	6,211	0.819%	0.467%	0.531%
60-64	649,306	18,223	8,618	2.807%	1.327%	1.466%	2,408,260	35,232	17,427	1.463%	0.724%	0.815%
65-69	1,064,810	19,158	20,919	1.799%	1.965%	2.102%	4,184,448	66,391	46,650	1.587%	1.145%	1.240%
70-74	1,371,138	55,798	40,637	4.069%	2.964%	3.275%	5,623,834	121,738	99,386	2.165%	1.767%	1.981%
75-79	1,069,745	67,432	49,509	6.304%	4.628%	5.088%	6,133,121	220,702	182,968	3.599%	2.983%	3.341%
80-84	646,547	57,620	49,703	8.912%	7.687%	8.152%	5,715,784	323,132	302,602	5.653%	5.294%	5.785%
85-89	322,038	63,536	40,616	19.729%	12.612%	13.009%	4,273,692	439,667	405,502	10.288%	9.488%	10.312%
90-94	172,155	36,382	35,934	21.133%	20.873%	21.218%	2,167,989	370,741	366,808	17.101%	16.919%	17.637%
95-99	35,513	11,332	10,703	31.909%	30.137%	31.468%	752,385	214,609	203,666	28.524%	27.069%	27.630%
100-104	2,466	1,417	992	57.462%	40.218%	42.302%	81,957	28,754	33,348	35.084%	40.690%	38.208%
105-109	0	0					1,018	1,018	529	100.000%	51.976%	51.205%
Total	8,416,018	395,608	264,607	4.701%	3.144%	3.448%	36,169,411	1,902,729	1,668,274	5.261%	4.612%	4.965%

Amount Weighted Average Retiree Mortality Rates by Year		
FY Ending	Male	Female
2019	2.75%	1.63%
2020	2.63%	1.86%
2021	3.20%	1.96%
2022	2.86%	1.95%
2023	2.70%	1.95%



DISABILITY INCIDENCE RATE TABLES

Rank and File						
Age	Eligible Members	Actual Disabilities	Expected Disabilities	Actual Disability Rates	Expected Disability Rates	Proposed Disability Rates
<20	175	0	0.0	0.00%	0.01%	0.00%
20-24	4,944	0	0.5	0.00%	0.01%	0.01%
25-29	12,911	0	1.3	0.00%	0.01%	0.01%
30-34	16,517	2	1.7	0.01%	0.01%	0.01%
35-39	20,144	3	10.1	0.01%	0.05%	0.03%
40-44	21,963	9	22.0	0.04%	0.10%	0.07%
45-49	22,570	15	33.9	0.07%	0.15%	0.11%
50-54	24,702	18	54.3	0.07%	0.22%	0.15%
55-59	21,492	42	64.5	0.20%	0.30%	0.25%
60-64	16,494	0	0.0	0.00%	0.00%	0.00%
65+	7,726	0	0.0	0.00%	0.00%	0.00%
Total	169,638	89	188.2	0.05%	0.11%	0.08%

Corrections/Hazardous Duty						
Age	Eligible Members	Actual Disabilities	Expected Disabilities	Actual Disability Rates	Expected Disability Rates	Proposed Disability Rates
<20	151	0	0.0	0.00%	0.01%	0.00%
20-24	1,823	0	0.2	0.00%	0.01%	0.01%
25-29	2,840	0	0.3	0.00%	0.01%	0.01%
30-34	2,599	0	1.3	0.00%	0.05%	0.03%
35-39	3,040	1	4.0	0.03%	0.13%	0.08%
40-44	3,211	2	5.5	0.06%	0.17%	0.11%
45-49	3,150	10	8.8	0.32%	0.28%	0.30%
50-54	2,948	12	16.2	0.41%	0.55%	0.48%
55-59	2,118	8	16.9	0.38%	0.80%	0.60%
60-64	1,135	1	0.0	0.09%	0.00%	0.05%
65+	400	0	0.0	0.00%	0.00%	0.00%
Total	23,415	34	53.2	0.15%	0.23%	0.19%