

Employees' Retirement System of Rhode Island

Actuarial Experience Investigation
for the Period Ending June 30, 2025





May 20, 2026

Retirement Board
50 Service Avenue, 2nd Floor
Warwick, RI 02886-1021

Subject: Results of 2026 Actuarial Experience Study for ERSRI

Dear Members of the Board:

We are pleased to present our report on the results of the 2026 Actuarial Experience Investigation Study for the Employees' Retirement System of Rhode Island (ERSRI). It includes a discussion of recent experience, it presents our recommendations for new actuarial assumptions and methods, and it provides information about the actuarial impact of these recommendations on the liabilities and other key actuarial measures. This report contains the results of the experience study for all groups covered under ERSRI, including State Employees, Teachers, MERS, State Police, State Judges, and the Teacher Survivor Benefit Plan.

Using the recommended set of actuarial assumptions should present a more accurate portrayal of ERSRI's financial condition and should reduce the magnitude of future experience gains and losses.

This study was conducted in accordance with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The undersigned meet all of the Qualification Standards of the American Academy of Actuaries. In addition, the undersigned have extensive experience as retained public sector actuaries for several large, statewide public retirement systems.

We wish to thank the ERSRI staff for their assistance in providing data for this study.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "J. Newton".

Joseph P. Newton, FSA, MAAA, EA
Pension Market Leader and Actuary

A handwritten signature in black ink, appearing to read "Paul T. Wood".

Paul T. Wood, ASA, MAAA, FCA
Senior Consultant and Actuary

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SECTION I

EXECUTIVE SUMMARY

Section I

Summary of Recommendations

Our recommended changes to the current actuarial assumptions may be summarized as follows:

- I. Increase individual salary increases for most groups.
- II. Update the mortality assumptions to the most recently published tables. This had no material impact to the liabilities or contributions.
- III. Increase probabilities of turnover before retirement for most groups.
- IV. Slight increase probabilities of retirement for most groups.

The net impact to the valuation process is a slight increase in liabilities and costs for most groups. For example, the changes would increase the employer contribution rate for State Employees and Teachers by about 0.2% of payroll and lower the funded ratio by 0.1%. The following is a brief summary of our findings.

Economic Assumptions

1. We find the current 2.50% general inflation assumption reasonable. We do find that several of the expectations from forward looking sources are slightly lower than the 2.50%, but recent experience and all look-back periods have exceeded the 2.50%. Also, the formula for post-retirement benefit adjustments is partially based on actual inflation results, thus the risk to liability growth is tilted towards higher inflation versus lower. For this reason, we would recommend having an assumption higher in the range of reasonable assumptions.
2. We find the current 7.00% investment return assumption reasonable and recommend no change. GRS' own survey of capital market expectations produces an expected return of 7.02%, right in line with the current assumption. This produces a 50.5% probability of achieving a 7.0% return over 10-years. These forward-looking expectations have been quite volatile, ranging from 6.1% to 7.4% at various points over the last five years. This type of precision and volatility is appropriate for the use by the SIC in its investment decisions because they are always interacting with current market prices and expectations over a given investment cycle. However, for use in setting the contribution requirements and funding patterns over a number of years, consistency around a single number that is in the middle of the range is more appropriate. Please note this assumption is net of administrative expenses, which are assumed to be 0.10% of plan assets per annum.
3. The assumed salary increase schedules for individuals include an ultimate component that begins with the general wage inflation assumption of 3.0% and may add (or subtract) on additional increases for individual merit (which would include promotions) and then an additional component for step rates based on service. Generally, we are recommending an increase of about 0.25% per year to most groups. The actual salary increases over the past decade have been significantly higher than the current assumptions, but much of that is from very recent years following the period of high inflation. Over the last 20 years, actual increases have been only slightly higher than the current assumption and thus we are only recommending a modest change.



4. We recommend no change to the overall payroll growth rate assumptions for all groups. This is a 2.50% annual expected payroll growth for all groups (equal to the inflation assumption) except for Teachers, which is 2.0%. Changing the payroll growth assumption has no impact on the liabilities, but does assume there is growth in the future payroll to amortize the UAAL, which results in lower current contribution requirements.
5. We recommend no change in the assumption for the contingent post-retirement benefit adjustments of 2.10% per year.

Mortality Assumptions

6. We recommend updating the mortality assumptions for healthy retirees to the recently published PUB(16) tables for public sector retirees, adjusted for ERSRI experience. The differences were very minor compared to the current assumptions. In addition, the assumptions include provisions for further improvement into the future, which are unchanged.
7. We recommend updating the mortality assumptions for disabled retirees to the recently published PUB(16) tables for disabled public sector retirees.
8. We recommend updating the mortality assumptions for active employees to the recently published PUB(16) tables for active public sector employees.

Other Demographic Assumptions

9. We recommend increasing the probabilities of retirement across points of service for MERS Police and Fire units and Corrections and ages prior to age 70 for Teachers.
10. We recommend increasing the probability of turnover for most groups. The experience was quite higher than the current assumptions, and has been trending higher. This change will decrease liabilities and contribution rates.
11. We recommend modifying the probability of disability for most groups based on the experience of the individual group.
12. We recommend no change to the current marriage assumption and spousal age difference.
13. For the Teacher Survivor Benefit Plan, we recommend no modifications to the current marriage, refund, and number of children assumptions. The current assumptions were developed in the 2017 study based on recent elections for members of the Plan and data from the national census, and we find them to still be reasonable.

Actuarial Methods and Policies

14. We recommend no change to the current asset smoothing method.



15. We recommend no change to the current funding method. The individual Entry Age Normal cost method (EAN) is the current funding method being used to allocate the actuarial costs of the System. The Entry Age Normal method will generally produce relatively level contribution amounts as a percentage of payroll from year to year, and allocates costs among various generations of taxpayers in a reasonable manner. It is by far the most commonly used actuarial cost method for large public retirement systems. We continue to believe this is the most appropriate funding method.



Impact on Liabilities and Contributions

Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
State Employees			
Unfunded actuarial accrued liability	\$1,962 million	\$1,969 million	\$6 million
Funded ratio	63.9%	63.8%	-0.1%
Illustrated FY 2028 Employer Contribution	27.97%	28.17%	0.20%
Teachers			
Unfunded actuarial accrued liability	\$2,411 million	\$2,427 million	\$16 million
Funded ratio	67.9%	67.8%	-0.1%
Illustrated FY 2028 Employer Contribution	25.16%	25.37%	0.21%
SPRBT			
Unfunded actuarial accrued liability	\$31 million	\$29 million	-\$2 million
Funded ratio	88.4%	89.1%	0.7%
Illustrated FY 2028 Employer Contribution	21.08%	20.38%	-0.70%
JRBT			
Unfunded actuarial accrued liability	-\$7 million	-\$8 million	-\$1 million
Funded ratio	106.3%	106.8%	0.5%
Illustrated FY 2028 Employer Contribution	15.94%	16.32%	0.38%
MERS General			
Unfunded actuarial accrued liability	\$126 million	\$125 million	-\$1 million
Funded ratio	91.5%	91.5%	0.0%
Illustrated FY 2028 Employer Contribution	10.20%	10.05%	-0.15%
MERS Police and Fire			
Unfunded actuarial accrued liability	\$121 million	\$131 million	\$10 million
Funded ratio	89.0%	88.2%	-0.8%
Illustrated FY 2028 Employer Contribution	18.01%	19.19%	1.19%
Teacher Survivor Benefit Plan			
Unfunded actuarial accrued liability	-\$245 million	-\$250 million	-\$5 million
Funded ratio	202.3%	206.4%	4.0%

The only assumption change affecting the Legacy Units is the change in morality which results in very little change in the results.



SECTION II

INTRODUCTION

Section II Introduction

Summary of Process

A periodic review and selection of the actuarial assumptions is one of many important components of understanding and managing the financial aspects of the Employees' Retirement System of Rhode Island (ERSRI). Use of outdated or inappropriate assumptions can result in understated costs which will lead to higher future contribution requirements or perhaps an inability to pay benefits when due; or, on the other hand, produce overstated costs which place an unnecessarily large burden on the current generation of members, employers, and taxpayers.

A single set of assumptions is typically not expected to be suitable forever. As the actual experience unfolds or the future expectations change, the assumptions should be reviewed and adjusted accordingly.

It is important to recognize that the impact from various outcomes and the ability to adjust from experience deviating from the assumption are not symmetric. Due to compounding economic forces, legal limitations, and moral obligations, outcomes from underestimating future liabilities are much more difficult to manage than outcomes of overestimates, and that un-symmetric risk should be considered when the assumption set, investment policy and funding policy are created. As such, the assumption set used in the valuation process needs to represent the best estimate of the future experience of the System and be at least as likely, if not more than likely, to overestimate the future liabilities versus underestimate them.

Using this strategic mindset, each assumption was analyzed compared to the actual experience of ERSRI and general experience of other large public employee retirement systems. Changes in certain assumptions and methods are suggested upon this comparison to remove any bias that may exist and to perhaps add in a slight margin for future adverse experience where appropriate. Next, the assumption set as a whole was analyzed for consistency and to ensure that the projection of liabilities was reasonable and consistent with historical trends.

The following report provides our recommended changes to the current actuarial assumptions.



In determining liabilities and contribution rates for retirement plans, actuaries must make assumptions about the future. Among the assumptions that must be made include:

- Retirement rates
- Mortality rates
- Turnover rates
- Disability rates
- Investment return rate
- Salary increase rates
- Inflation rate

For some of these assumptions, such as the mortality rates, past experience provides important evidence about the future. For others, such as the investment return assumption, the link between past and future results is much weaker. In either case, actuaries should review the plan's assumptions periodically and determine whether these assumptions are consistent with actual past experience and with anticipated future experience.

The last such actuarial experience investigation was performed based on data through June 30, 2022. For this experience study, we have analyzed ERSRI's experience for all years through June 30, 2025 as applicable.

For most of the assumptions, the data was weighted by some way to reflect how the liability is changing or expected to change versus how individuals are behaving. The weighted analysis gives a better reflection of how actuarial gains or losses are being generated instead of just demographic reconciliation.

In conducting experience studies, actuaries generally use data over a period of several years. This is necessary in order to gather enough data so that the results are statistically significant. In addition, if the study period is too short, the impact of the current economic conditions may lead to misleading results. It is known, for example, that the health of the general economy can impact salary increase rates and withdrawal rates. Using results gathered during a short-term boom or bust will not be representative of the long-term trends in these assumptions. Also, the adoption of legislation, such as plan improvements or changes in salary schedules, will sometimes cause a short-term distortion in the experience. For example, if an early retirement window was opened during the study period, we would usually see a short-term spike in the number of retirements followed by a dearth of retirements for the following two-to-four years. Using a longer period prevents giving too much weight to such short-term effects. On the other hand, using a much longer period would water down real changes that may be occurring, such as mortality improvement or a change in the ages at which members retire. For this reason, we use different time periods for different assumptions.



The following is a list of the time periods utilized throughout the analysis.

Assumption	Data Used	Comment
Salary Increases, Wage Inflation and Payroll Growth	20 Years	Long-term trends are needed, also prospective changes must be considered
Termination	10 Years	Longer period will capture a longer economic cycle
Post-Retirement Mortality	9 Years	Longer period allows for low volatility in the assumption and more credibility.
All Other	6 Years	The assumptions react quicker to changing trends and are less correlated with the economic cycle

In an experience study, we first determine the number of deaths, retirements, etc. that occurred during the period. Then we determine the number expected to occur, based on the current actuarial assumptions. The number of “expected” decrements is determined by multiplying the probability of the occurrence at the given age, by the “exposures” at that same age. For example, let’s look at a rate of retirement of 15% at age 55. The number of exposures can only be those members who are age 55 and eligible for retirement at that time. Thus they are considered “exposed” to that assumption. Finally, we calculate the A/E ratio, where “A” is the actual number (of retirements, for example) and “E” is the expected number. If the current assumptions were “perfect”, the A/E ratio would be 100%. When it varies much from this figure, it is a sign that new assumptions may be needed. (However, in some cases we prefer to set our assumptions to produce an A/E ratio a little above or below 100%, in order to introduce some conservatism.) Of course we not only look at the assumptions as a whole, but we also review how well they fit the actual results by gender, by age, and by service.

If the data leads the actuary to conclude that new tables are needed, the actuary may “graduate” or smooth the results, since the raw results can be quite uneven from age to age or from service to service.

Please bear in mind that, while the recommended assumption set represents our best estimate, there are other reasonable assumptions sets that could be supported.

Organization of Report

Section III contains our findings and recommendations for each actuarial assumption. The impact of adopting our recommendations on liabilities and contribution rates is shown in Section IV. Section V presents a summary of all the actuarial assumptions and methods, including the recommended changes. Finally, tables summarizing the analysis of the assumptions are in Section VI.



Section VI Exhibits

The exhibits in Section VI should generally be self-explanatory. For example, on page 56, we show the exhibit analyzing the termination rates for Teachers. The second column shows the total payroll for the Teachers who terminated during the study period. This excludes members who died, became disabled or retired. Column (3), labeled “Total Payroll Exposed” shows the total exposures. This is the amount of payroll that could have terminated during any of the years. On this exhibit, the exposures exclude anyone eligible for retirement. A member is counted in each year he could have terminated, so the total shown is the total exposures for the ten-year period used in the analysis. Column (4) shows the probability of termination based on the raw data. That is, it is the result of dividing the actual number of terminations (col. 2) by the number exposed (col. 3). Column (5) shows the current termination rate and column (6) shows the new recommended termination rate. Columns (7) and (8) show the expected numbers of terminations based on the current and proposed termination assumptions. Columns (9) and (10) show the Actual-to-Expected ratios under the current and proposed termination assumptions.



SECTION III

ANALYSIS OF EXPERIENCE AND RECOMMENDATIONS

Section III

Analysis of Experience and Recommendations

We will begin by discussing the economic assumptions: inflation, the investment return rate, the salary increase assumptions, the payroll growth rate, etc. Then we will discuss the demographic assumptions: mortality, disability, termination, retirement, etc. Finally, we will discuss the actuarial methods used.

Inflation and Investment Return Assumptions

Actuarial Standards of Practice (ASOP) No. 27, Selection of Assumptions for Measuring Pension Obligations, provides guidance to actuaries on giving advice on selecting economic assumptions for measuring obligations for defined benefit plans.

Generally, the economic assumptions are much more subjective in nature than the demographic assumptions. As no one knows what the future holds, it is necessary for the actuary to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent and/or historical experience.

Although recognizing that there is not one right answer, the current standard calls for the actuary to develop a best-estimate for each economic assumption. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

Inflation Assumption

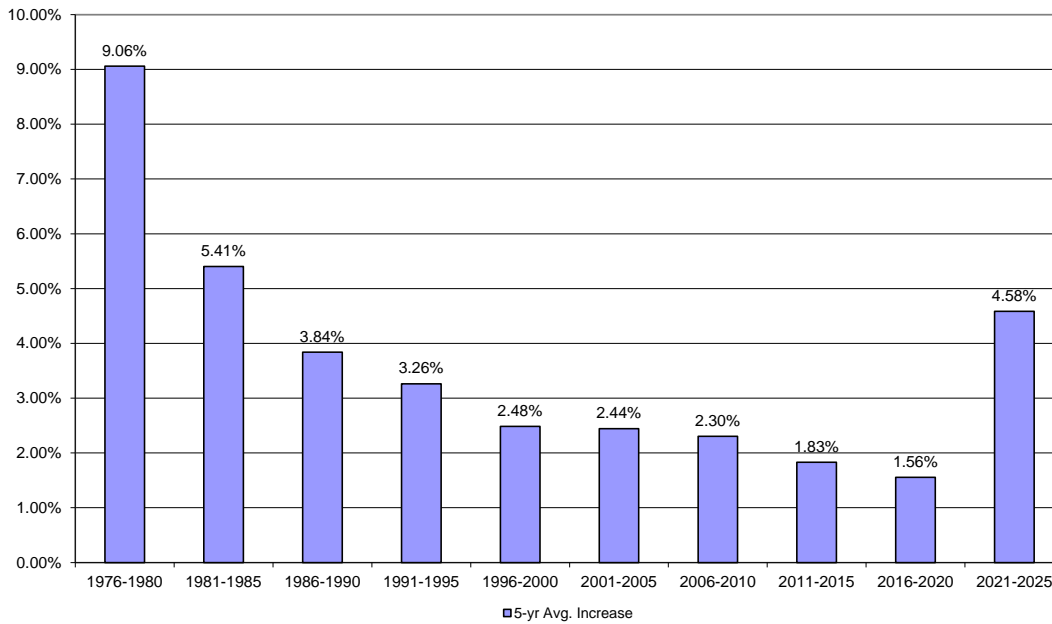
By “inflation,” we mean price inflation, as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies most of the other economic assumptions. It impacts investment return, salary increases, payroll growth, and cost-of-living increases. The current annual inflation assumption is 2.50%.

Actual Change in CPI-U

The chart on the following page shows the average annual inflation in each of the ten consecutive five-year periods over the last fifty years:



Average Annual Inflation
CPI-U, Five Calendar Year Averages



The following table shows the average inflation over various periods, ending June 30, 2025:

Periods Ending June 30, 2025	Average Annual Increase in CPI-U
Last five (5) years	4.58%
Last ten (10) years	3.06%
Last fifteen (15) years	2.65%
Last twenty (20) years	2.56%
Last twenty-five (25) years	2.54%
Last thirty (30) years	2.53%

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

Sources of Forward-Looking Forecasts

As the valuation is a forward-looking exercise, the forward-looking expectations are more relevant than the historical data. The following is a list of several external sources for forward-looking inflation expectations.

Forward-Looking Price Inflation Forecasts^a	
Congressional Budget Office^b	
5-Year Annual Average	2.48%
10-Year Annual Average	2.39%
Federal Reserve Bank of Philadelphia^c	
5-Year Annual Average	2.40%
10-Year Annual Average	2.30%
Federal Reserve Bank of Cleveland^d	
10-Year Expectation	2.19%
20-Year Expectation	2.29%
30-Year Expectation	2.37%
Federal Reserve Bank of St. Louis^e	
10-Year Breakeven Inflation	2.34%
20-Year Breakeven Inflation	2.45%
30-Year Breakeven Inflation	2.22%
U.S. Department of the Treasury^f	
10-Year Breakeven Inflation	2.37%
20-Year Breakeven Inflation	2.44%
30-Year Breakeven Inflation	2.25%
50-Year Breakeven Inflation	2.29%
100-Year Breakeven Inflation	2.31%
Social Security Trustees^g	
Ultimate Intermediate Assumption	2.40%

^aEnd of the First Quarter, 2026. Version 2026-04-14 by Gabriel, Roeder, Smith & Company

^bThe Budget and Economic Outlook: 2026 to 2036, Release Date: February 2026, Consumer Price Index (CPI-U), Percentage Change from Year to Year, 5-Year Annual Average (2026 - 2030), 10-Year Annual Average (2026 - 2035).

^cFirst Quarter 2026 Survey of Professional Forecasters, Release Date: March 6, 2026, Headline CPI, Annualized Percentage Points, 5-Year Annual Average (2026 - 2030), 10-Year Annual Average (2026 - 2035).

^dInflation Expectations, Model output date: March 1, 2026.

^eThe breakeven inflation rate represents a measure of expected inflation derived from X-Year Treasury Constant Maturity Securities and X-Year Treasury Inflation-Indexed Constant Maturity Securities. Observation date: March, 2026.

^fThe Treasury Breakeven Inflation (TBI) Curve, Monthly Average Rates, March, 2026.

^gThe 2025 Annual Report of The Board of Trustees of The Federal Old-Age And Survivors Insurance and Federal Disability Insurance Trust Funds, June 18, 2025, p. 11, Key Assumptions and Summary Measures for Long-Range (75-year) Projections, Intermediate, Consumer Price Index (CPI-W).



As shown, even though recent inflation has exceeded the current 2.50% assumption, all of the sources with a 10+ year time horizon are projecting inflation to be at or less than the currently assumed 2.50%.

Comparison of Inflation Expectations from December 2022 to December 2025

Finally, the table below provides a comparison of the inflation expectations documented in the last experience study report and the current inflation expectations.

Source	Inflation Expectations December,		Change
	2022	2025	
(1)	(2)	(3)	(4)
ERSRI' Investment Consultant	2.50%	2.30%	-0.20%
Implied Inflation 20-Year Treasuries	2.40%	2.45%	+0.05%
SSA Trustees Report	2.40%	2.40%	0.00%
Survey of Professional Forecasters	2.95%	2.30%	-0.65%

Recommendation

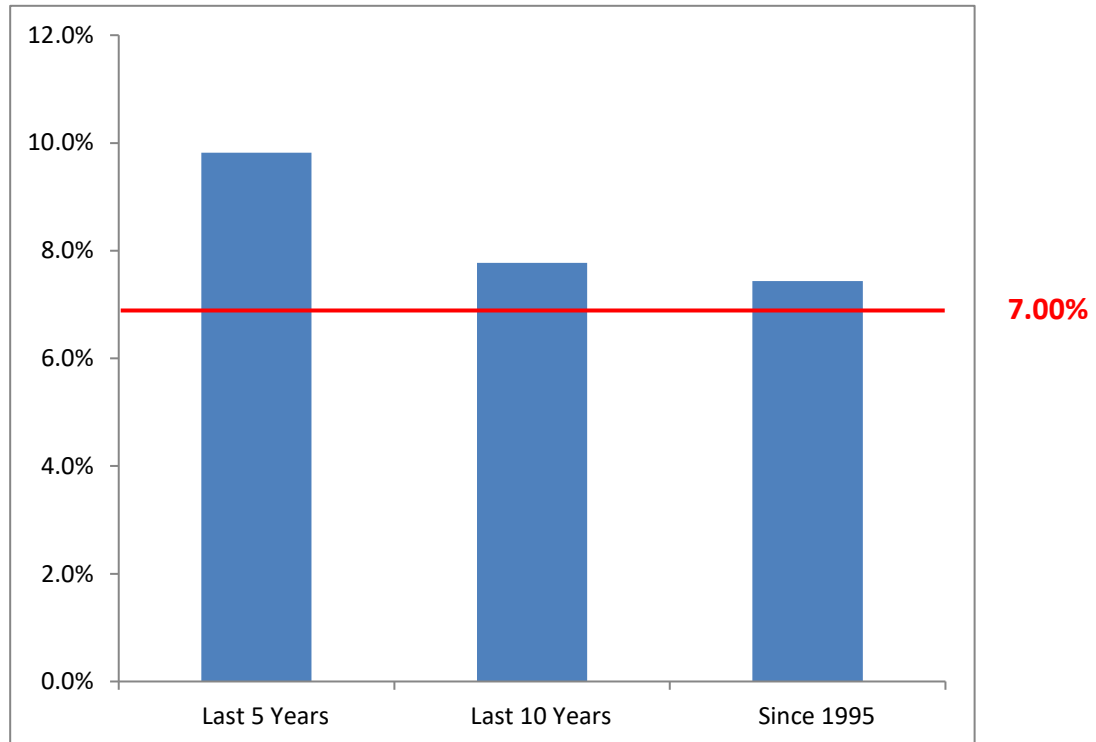
We find the current 2.50% general inflation assumption reasonable. We do find that several of the expectations from forward looking sources are lower than the 2.50%, but recent experience has exceeded the 2.50% and all historical look-back periods meet or exceed 2.50%. Also, the formula for post-retirement benefit adjustments is partially based on actual inflation results, thus the risk to liability growth is tilted towards higher inflation versus lower. For this reason, we would recommend having an assumption higher in the range of reasonable assumptions.



Investment Return Assumption

The investment return assumption is the principal assumption used in any actuarial valuation of a retirement plan. It is used to discount future expected benefit payments to the valuation date in order to determine the liabilities of the plans. Even a small change to this assumption can produce significant changes to the liabilities and contribution rates. Currently, it is assumed that future investment returns will average 7.00% per year, net of investment and administrative expenses. The current assumption assumes inflation of 2.50% per annum and an annual real rate of return of 4.50%, net of expenses.

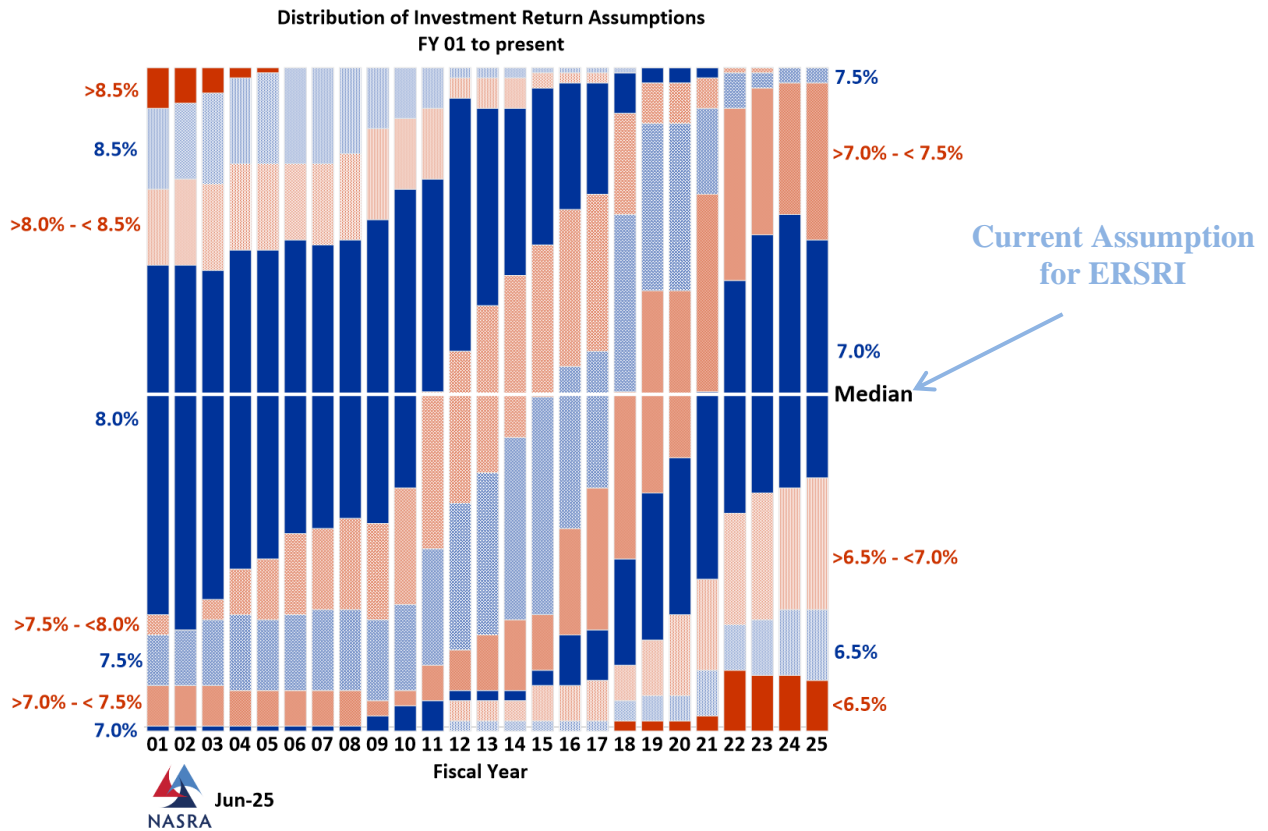
The chart below shows a history of ERSRI's market returns through FY 2025.



Thus, since 1995, the compound return of the System has achieved the current assumption of 7.0%. Even so, past performance, even averaged over a twenty-five year period, is not a reliable indicator of future performance for this assumption. The actual asset allocation of the trust fund will significantly impact the overall performance, so returns achieved under a different allocation are not meaningful. More importantly, the real rates of return for many asset classes, especially equities, vary so dramatically from year to year that even a twenty-year period is not long enough to provide reasonable guidance. And of course, bond yields are materially different than they were in 1995.

Comparison to Peers

We do not recommend the selection of an investment return assumption based on prevalent information. However, it is still informative to identify where the investment return assumption for ERSRI is compared to its peers. The chart on the following page shows the distribution of the investment return assumptions in the Public Plans Data as of June of 2025.



Source: 2025 Public Plans Database. Median investment return assumption: 7.00% nominal return.

The graphic includes the overall national trends in this assumption. The median rate of return is 7.00%, same as when reviewed in the 2022 experience study.

Expenses

Since the trust fund pays expenses in addition to member benefits and refunds, we must make an assumption about the expenses. Almost all actuaries treat investment expenses as an offset to the investment return assumption. That is, the investment return assumption represents expected return after payment of investment expenses.

For investment expenses, investment consulting firms periodically issue reports that describe their capital market assumptions. The estimates for core investments (i.e., fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds that are net of investment related fees. The investment return expectations for the alternative asset class such as private equity and hedge funds are also net of investment expenses. Therefore, we did not make any adjustments to account for investment related expenses. Some of the Retirement Systems may also employ active management investment strategies that result in higher investment expenses compared to strategies that invest in passive index funds. We have assumed that active management strategies would result in the same returns, net of investment expenses, as passive management strategies.

On the other hand, there is a divergence of practice on the handling of administrative expenses. Some actuaries make an assumption that administrative expenses will be some fixed or increasing dollar amount. Others assume that the administrative expenses will be some percentage of the plan's actuarial liabilities or



normal cost. And others treat administrative expenses like investment expenses, as an offset to the investment return assumption. The historical practice for ERSRI has been to set the investment return assumption as the net return after payment of both investment and administrative expenses. Since this is how the investment related cost of living increase is calculated, it makes sense to keep the same process. The following chart shows the administrative expenses for the last six years expressed as a percentage of the assets, adjusted for cash flow, each year:

Fiscal Year	Administrative
2025	0.096%
2024	0.110%
2023	0.094%
2022	0.098%
2021	0.108%
2020	0.106%
Average	0.102%

Based on this information, we have assumed that 0.10% (10 basis points) of each year’s investment return will be used to pay administrative expenses. This assumption is then used in setting the investment return assumption.

Asset Allocation

We believe the most appropriate approach to selecting an investment return assumption is to identify expected returns given the funds’ asset allocation mapped to forward-looking capital market assumptions. Because GRS is a benefits consulting firm and does not provide investment consulting advice, we do not develop or maintain our own forecasts of capital market expectations. Instead, we utilized the forward-looking return expectations developed by nationally recognized investment consulting firms, including the SIC’s investment consultant.

The following is an excerpt from ASOP 27 on the topic of using experts:

3.24 Reliance on Expertise of Others—*An actuary may rely on the expertise of others (including actuaries not performing actuarial services) in the fields of knowledge used in the selection of the assumption. However, the actuary should be reasonably satisfied that the reliance is appropriate, taking into account the following:*

- a. whether the actuary knows that the individual upon whom the actuary is relying has expertise in the applicable field;*
- b. whether the actuary knows of significant differences of opinion among others with expertise concerning aspects of the assumption that could be material to the actuary’s use of the assumption; and*
- c. whether the actuary knows of industry or regulatory standards that apply to the assumption.*



In our professional judgement, it is appropriate to rely on the SIC’s investment consultants’ input as part of our consideration in making a recommendation as they are the experts and have specialized knowledge in this subject matter. This is the same data being used for investment decision making, and thus is a reasonable set of data for use in decisions on funding as well.

As part of an asset allocation study, the SIC’s investment consultant Meketa provided materials to its Board in February of 2026 that their current capital market expectations for the forward looking 10-year return of the ERSRI portfolio to be 6.7%.

Using our own survey of capital market expectations called the CMAM, from 12 investment consultants, we have estimated the forward looking 10-year return to be 7.02%, slightly higher but generally in line with the SIC’s information. Here is a distribution of all 12 sources in our survey.

GRS 2026 CMAM				
Capital Market Assumption Set (CMA)	Distribution of 10-Year Average Geometric Net Nominal Return			Probability of exceeding 7.00%
	40th	50th	60th	
(1)	(2)	(3)	(4)	(5)
1	4.61%	5.79%	6.98%	39.8%
2	4.78%	5.96%	7.15%	41.2%
3	5.35%	6.57%	7.80%	46.5%
4	5.66%	6.72%	7.79%	47.3%
5	5.85%	6.98%	8.11%	49.8%
6	6.22%	7.15%	8.10%	51.6%
7	5.95%	7.18%	8.44%	51.5%
8	6.16%	7.35%	8.54%	52.9%
9	6.35%	7.39%	8.43%	53.7%
10	6.65%	7.66%	8.68%	56.5%
11	6.66%	7.67%	8.69%	56.7%
12	6.76%	7.79%	8.83%	57.7%
Average	5.92%	7.02%	8.13%	50.5%

Notice the range of the 50th percentile outcome is from 5.79% to 7.79%, which the 7.0% assumption falls in the middle of. Also, while the expected outcome is 7.02%, there is only a 50.5% probability of achieving the 7.0% assumption. To show more detail in the volatility in these expectations, the following exhibit shows the median 10-year outcome from the GRS survey for the past five years for the current ERSRI portfolio.

10-year Expected Return of Current Portfolio					
Determined by last 5 GRS Surveys					
2022	2023	2024	2025	2026	Average
(1)	(2)	(3)	(4)	(5)	(6)
6.1%	7.4%	7.2%	7.2%	7.0%	7.0%



Thus, the forward looking expectations for the same portfolio have varied from 6.1% to 7.4%. This type of precision and volatility is appropriate for the use by the SIC in its investment decisions because they are always interacting with current market prices and expectations over a given investment cycle. However, for use in setting the contribution requirements and funding patterns over a number of years, consistency around a single number that is in the middle of the range is more appropriate.

Thus, we find the current 7.00% investment return assumption reasonable and recommend no change.

Post-Retirement Benefit Increases

Most members of ERSRI are eligible for post-retirement increases if the individual plan they participate in is over 75% funded (State, Teachers, JRBT, and STPL are all commingled to determine if they meet this requirement).

The increase is calculated as the sum of (1) half of the average compounded investment return during the prior five fiscal years, net of expenses, in excess of a subtrahend equal to the investment return assumption less 2.0%, with the result not less than 0% nor greater than 4% and (2) half of the increase in the September CPI-U for the year prior to the COLA, but not more than 3.0%. The five year average return is represented as the annual rate of return on the actuarial value of assets. We perform one system-wide calculation so all retirees who receive an adjustment will receive the same adjustment.

We will continue to assume the investment related portion is 2.0%. For the CPI related component, we currently assume this will average 2.20% over time.

Thus, the assumption for future post-retirement benefit increases will continue to be 2.10% (the average of 2.00% and 2.20%).

General Wage Inflation

The valuation currently assumes that General Wage Inflation (GWI) will be 0.50% above price inflation. The 0.50% represents the real wage growth over time in the general economy, or, is the assumption on how much the pay scales themselves will change year to year, not necessarily how much the pay increases received by individuals are. Another way to look at this assumption is the projected growth rate of the budget of the plan sponsor. This assumption is used primarily to index each cohort of new entrants used in projections, as a building block for the individual salary increase assumption and as a starting point in determining the payroll growth assumption.

Historically, General Wage Inflation almost always exceeds price inflation. This is because wage inflation is in theory the result of (a) price inflation, and (b) productivity gains being passed through to wages. For the national economy as a whole, general wage inflation has exceeded inflation by approximately 1.0% annually over most extended timeframes.

The following chart provides the change in average salary for each of the covered group over the last 20 years. This would be the same as the rate of growth in overall payroll with a stable population. The average annual change in average payroll for most of the groups hovered around 3.0% per year, while inflation was 2.6% during the period. However, State Employees has changed by 3.1% per year over that last decade, while the same value for Teachers has been 2.6%. Netting against the actual inflation of 2.6% produces an



actual change about equal to the 3.0% wage inflation assumption for State Employees and 2.5% price inflation for Teachers.

Change in Average Salary Over Last 20 Years (Headcount Adjusted Overall Rate of Payroll Growth)					
	State	Corrections	Teachers	MERS General	MERS P&F
All Members	2.83%	3.55%	2.31%	2.80%	3.22%
Members with 2-4 years of service	3.08%	3.61%	2.61%	2.69%	3.13%

Also, there is a spread between the average salaries for new hires and inflation, which have been increasing faster than the group as a whole for State Employees and for Teachers. As this cohort represents more and more future members, it is possible that the change in average salary overall is closer to the current assumption.

The current assumption is already lower than national trends and we recommend no change to the 0.5% spread above inflation. The lower average increase for Teachers above is due to the demographics of that group as discussed below and very low increases, if not decreases, in salaries coming out of the Great Recession. If only looking at the change in median average salary for the past decade years, the growth in average salary has been more consistent with the current assumptions.

Salary increase rates

In order to project future benefits, the actuary must project future salary increases. Salaries may increase for a variety of reasons:

- Across-the-board increases for all employees;
- Across-the-board increases for a given group of employees;
- Increases to a minimum salary schedule;
- Additional pay for additional duties;
- Step or service-related increases;
- Increases for acquisition of advanced degrees or specialized training;
- Promotions; or
- Merit increases, if available.

Our salary increase assumption is meant to reflect all of these types of increases.

The actuary should not look at the overall increases in payroll in setting this assumption because payroll can grow at a rate different from the average pay increase for individual members. There are two reasons for this. First, when older, longer-service employees terminate, retire or die, they are generally replaced with new employees who have a lower salary. Because of this, in most populations that are not growing in size,

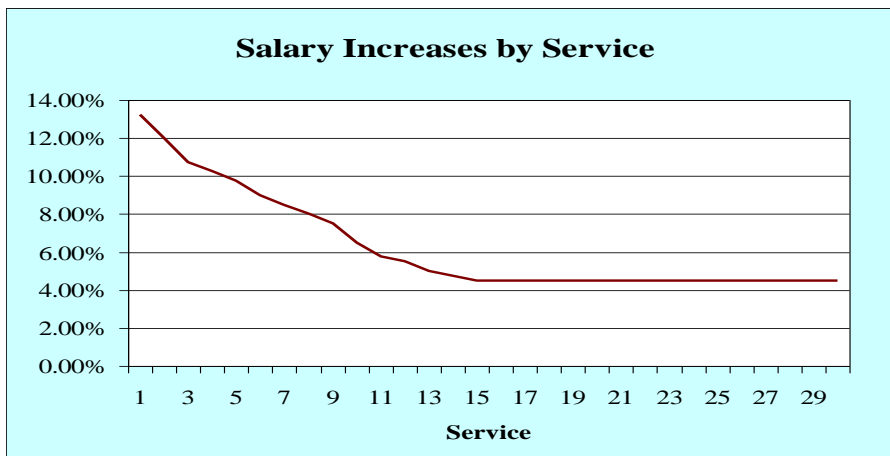


the growth in total payroll is smaller than the average pay increase for members. Second, payroll can change due to an increase or decrease in the size of the group. Therefore, to analyze salary increases, we examine the actual increase in salary for each member who is active in two consecutive fiscal years.

Salary increases for governmental employees can vary significantly from year to year. When the employer's tax revenues stall or increase slowly, salary increases often are small or nonexistent. During good times, salary increases can be larger. Our experience across many governmental plans also shows several occasions in which salary increases will be low for a period of several years followed by a significant increase in one year. Therefore, for this assumption in particular, we prefer to use data over a longer period in establishing our assumptions. We used a 20-year period for this analysis.

Most actuaries recommend salary increase assumptions that include an element that depends on the member's age or service, especially for large, public retirement systems. It is typical to assume larger pay increases for younger or shorter-service employees. This is done in order to reflect pay increases that accompany step increases, changes in job responsibility, promotions, demonstrated merit, etc. The experience shows salaries have been more closely correlated to service (rather than age), as promotions and productivity increases tend to be greater in the first few years of a career, even if the new employee is older than the average new hire.

Thus, if we graph the increases by service, we usually get a graph where the increases are larger for shorter service employees and then level out at a lower level after a period that may be ten to twenty-five years. It might look like this, although in practice not this smooth:



Therefore, we divide the task of setting the salary increase into two pieces:

1. Determining the assumption for long-service employees
2. Determining the additional increases to be applied to shorter-service employees

The next two subsections will discuss these components of the salary assumption.

Salary increase assumptions for long-service employees (ultimate salary scale)

Many of the factors that result in pay increases are largely inapplicable or have diminished importance for longer-service employees. Step or service-related increases have stopped or are minimal. Promotions occur

with less frequency. Additional training or acquisition of advanced degrees usually occurs early in the career. In theory, then, salary increases for longer-service employees are heavily driven by wage inflation, with only a small factor for individual merit. We will define the last value in our salary increase assumption as the ultimate component. This will be made up of price inflation plus general productivity plus individual merit. We may also sometimes refer to the sum of the general productivity and the individual merit as the individual productivity component.

For State Employees, our study shows that for members with at least twenty-five years of service, the average annual salary increase during the twenty-year period was 3.62%. Inflation during this 20-year period averaged 2.55%. Therefore, long-service employees received an average salary increase of 1.08% above inflation (individual productivity component). So, the average salary increase for long-service members was higher than the current assumption on a nominal basis (3.62% vs 3.00%) and on a real basis (1.08% vs 0.50%). For Teachers, the average annual salary increase during the twenty-year period was 2.51%, basically equal to inflation. However, there were some very low years coming out of the great recession, and more recent experience has been closer to the current assumption. The following table summarizes this for all of the groups:

Ultimate Salary Scale (20-Year Experience)							
	State	Corrections	Teachers	MERS General	MERS P&F	State Police	Judges
Long Service Definition (Years)	25	25	25	25	25	25	1
Current Assumption	3.00%	3.00%	2.75%	3.00%	3.50%	4.00%	2.75%
Actual Increase	3.62%	4.14%	2.51%	2.99%	3.99%	9.24%	3.36%
Recommended Ultimate Salary Increase Assumption	3.25%	3.25%	2.75%	3.10%	3.75%	4.25%	3.00%
Change	0.25%	0.25%	0.00%	0.10%	0.25%	0.25%	0.25%

We have increased the assumption for long service employees across almost all the groups. Teachers have a pattern of higher increases early in the career and lower increases late in the career, so the ultimate salary scale is lower than the 3.00% GWI assumption.

While several individual productivity components appear high compared to the assumption, much of that is from very recent experience, with very tight labor market conditions. We have generally moved towards the 20-year experience and will wait for more data in a future experience study.

Salary increase assumptions for shorter-service employees

To analyze the service-related salary assumption, we looked at the excess in the average increases for shorter-service employees over the average for longer-service employees. For example, Teachers with three years of service received an average annual increase of 8.20%, which was 5.70% more than the average increase of 2.51% for Teachers with 25 or more years of service. The patterns were graduated for a



reasonable, stable pattern and compared to the current assumptions. We then, if necessary, determined new service-related assumptions reflecting this data. The following is a similar exhibit as above that shows the average increase a member is expected to receive over a 25-year career by category.

Average Career Salary Increase (Last 20-Years Experience)							
	State	Corrections	Teachers	MERS General	MERS P&F	State Police	Judges
Current Assumption	4.15%	4.83%	4.95%	4.03%	5.20%	5.59%	2.75%
Actual Increase last 20 Years	4.83%	5.86%	4.45%	4.06%	5.49%	8.47%	3.36%
Recommended Average Salary Increase Assumption	4.40%	5.08%	4.95%	4.13%	5.45%	5.84%	3.00%
Change	0.25%	0.25%	0.00%	0.10%	0.25%	0.25%	0.25%

Generally, the service-based components were reasonable for the groups, so the changes were in the individual productivity components discussed for long-service members. Any of the actuals that are higher than the assumption are easily explained by the same issues as before: very high recent experience.

Details of our analysis are shown in Section VI.

Payroll growth rate

The salary increase rates discussed above are assumptions applied to individuals and are used in projecting future benefits. We use a separate payroll growth assumption in determining the annual payment needed to amortize the unfunded actuarial accrued liability. The amortization payments are calculated to be a level percentage of payroll. Therefore, as payroll increases over time, these amortization payments will also increase.

In theory, payroll growth in the absence of membership growth should approximate the wage inflation assumption (proposed to be 3.00% for all plans but Teachers which is 2.50%). However, we may make adjustments based on the demographics of the individual population. For example, the current Teacher population is disproportioned to older ages based on hiring and staffing patterns over the last decade. Because of this, we anticipate slower growth over the next ten to fifteen years and use an assumption lower than the GWI assumption.

To analyze this, we need to take into account historical trends, future projections, and risk management around demographic patterns and headcount growth (or lack thereof). We projected the payroll for current members based on the assumed salary increases for the individuals and their assumed termination or retirement rates. We then added in enough new employees each year to replace them. Pay for the first group of new members was initialized based on actual average pay for current new members, and thereafter pay was projected based on the salary assumption and expected retirements and terminations for this cohort of new members. For each subsequent cohort of new members needed to replace the retired



and terminated members we increased the starting average pay by the general wage inflation assumption of 3.00% for all plans except for Teachers which is 2.50%.

The time period that is most important is the remaining large original amortization base from the 2011 pension reforms. Those are the largest amortization payments for the current plans and the ones that will drive the amortization schedule over that timeframe, which is about 10 more years. Based on this analysis we found that payroll over the next ten years was projected reasonably close to the 2.50% price inflation assumption for State Employees and lower than inflation for Teachers.

For the last twenty years total payroll growth has been 2.2% per year for State Employees and 1.5% per year for Teachers. Many of the factors that led to this may not be as extreme going forward, but there is still very likely to be a headwind for the remaining amortization period of the 2011 RIRSA base.

Therefore, we are recommending no change to the current assumption at 2.00% for Teachers and 2.50% for all other groups.

Post-retirement mortality rates (service retirees)

Perhaps the most critical demographic assumption used in pension valuations is post-retirement mortality. Rates of mortality affect our estimate of how long each individual is expected to live and consequently how long each individual is expected to receive a pension. Life expectancy in turn has a direct impact on pension plan liabilities.

Mortality rates have generally decreased over time in the U.S., meaning that life expectancies have generally increased over time. The assumption for future decreases in mortality is referred to as the mortality improvement assumption. In general, the mortality and mortality improvement assumptions are treated separately.

The current tables are based on adjusted versions of the Pub-2010 Public Retirement Plans Mortality Tables published by the Society of Actuaries (SOA), projected with the 2021 MP projection scales with immediate convergence. Of course, we also use separate tables for males and females. Separate tables discussed in the following section are used for disabled retirees.

We use separate mortality tables for Teachers and All Other Employees. Life expectancy for Teachers is on average longer than for other state and local government employees. We currently include Public Safety employees in the All Other Employee category. While historically, retirees from Public Safety occupations had a lower life expectancy than the general population, most recent data sources do not show a significant statistical difference between Public Safety retirees and the general population. In fact, if recent trends continue, it is likely today's 40-year old Public Safety employee will have a longer life expectancy once they retire than today's general employee. The largest data set to confirm this trend is the recently published Pub-2016 Public Retirement Plans Mortality Tables, which do show a difference, but only marginally so. We would rather have one larger, more credible dataset than two less credible ones, so we will continue to combine the groups.

To analyze the data, we began by determining the expected number of deaths in each year at each age for males and females. The analysis uses only the retirees, not the beneficiaries, joint annuitants, or survivors. We will use a liability-weighted (or benefit weighted) analysis. There are two reasons for using a liability-weighted approach. First, mortality experience across the U.S. has been shown to vary depending on



income level. Liability-weighting takes into account differing benefit levels. Second, selecting an assumption based on headcount-weighting is consistent with estimating expected deaths, but selecting an assumption based on liability-weighting is consistent with minimizing gains and losses associated with expected deaths. By weighting the data by annuity amounts, we are giving more weight to members who have larger annuities (and thus have larger liabilities).

We have utilized nine years of experience to increase the credibility of the analysis and minimize any variance created by timing of data collection from year to year. During this time, mortality improvement may have occurred. A general procedure is to adjust the actual experience for mortality improvements during the study period to the central year. For purposes of this study, proposed mortality rates shown in the tables have been adjusted to the central year 2019 using the proposed projection scales.

Impact from Pandemic

The data from fiscal years 2021 and 2022 were clearly impacted by the pandemic, with much higher rates of mortality than the other years. No one knows for sure how future mortality patterns will be impacted. As such, we have been careful to not add any more risk into the current assumption than currently exists, by removing those two years and replacing them with 2015 and 2016 to have a complete 9 years of data.

Credibility

When choosing an appropriate mortality assumption, actuaries typically use standard mortality tables. If the plan population has sufficient credibility to justify its own mortality table, then the use of such a table also could be appropriate. Factors that may be considered in selecting and/or adjusting a mortality table include the demographics of the covered group, the size of the group, the definition of disability in the plan, the statistical credibility of its experience, and the anticipated rate of future mortality improvement.

We first measured the credibility of the dataset to determine whether standard, unadjusted tables should be used or if client specific data was warranted. We apply a credibility procedure in accordance with ASOP No. 25, Credibility Procedures to determine partial credibility based on the limited fluctuation method to determine appropriate adjustments to the base table to be applied to each gender within each member classification. We utilized approaches described in this paper <https://www.soa.org/globalassets/assets/files/static-pages/sections/retirement/credibility-resource-pension.pdf> for this analysis. The paper shows that to be +/-5% with 90% confidence requires 1,082 deaths per gender. However, when using a benefit weighted approach to the analysis, even more deaths are required as the variance in the benefit amounts decreases the overall credibility.

During the period, there were 2,116 male deaths and 2,489 female deaths for the Non-Teacher group, indicating they are a highly credible group. For the Teacher group, there were 880 male deaths and 1,267 female deaths, giving them good credibility as well. The table on the following page provides the full details with $p=90\%$ and $r=5\%$.



Group	Other Employees		Teachers	
	Male	Female	Male	Female
Actual Deaths	2,116	2,512	880	1,267
Deaths needed for full credibility				
Based on Count	1,082	1,082	1,082	1,082
Based on Annuity Amount	1,684	1,754	1,205	1,231
Z Factor				
Based on Count	100.0%	100.0%	87.8%	100.0%
Based on Annuity Amount	100.0%	100.0%	85.5%	100.0%

Base Tables

In May 2025, the Society of Actuaries (SOA) issued the final version of Pub-2016 Public Retirement Plans Mortality Tables, updated from Pub-2010. As this is the latest published tables, we will update to variants of the newer tables.

We have compared the data from the study period to variants of the newer PUB(16) mortality tables. We compared the ratio of the actual deaths to the expected deaths—the A/E ratio—tells us whether the assumptions are reasonable.

We use the limited fluctuation credibility procedure to determine the appropriate scaling factor of the base mortality tables for each gender and each member classification on a benefits weighted basis. In each case, the Z-factor (shown above) is computed based on the experience of the group being studied. This Z-factor is a measure of the credibility of the pertinent group.

The Best Fit is the ratio of actual to expected deaths using the base table. The final scale is then determined as the weighted average of the Best Fit and 100% based on the Z-factor. For example, for male Teachers, the Z-factor of 85.5% suggests the data for that group is 85.5% credible. The Best Fit for that group (without credibility) would be to scale the base tables by 107.8%. The final scaler of 106.7% is the credibility-weighted average ($106.7\% = 85.5\% \times 107.8\% + 14.5\% \times 100\%$). Factors for other groups are determined similarly.



Group	Other Employees		Teachers	
	Male	Female	Male	Female
Actual Deaths (\$000 Annuities)	\$55,631	\$43,374	\$40,349	\$50,980
Expected Deaths based on Current Assumptions	\$55,976	\$42,840	\$39,227	\$51,295
A/E Ratio	99.4%	101.2%	102.9%	99.4%
Expected Deaths based on PUB(16) Median Tables by Occupation	\$50,170	\$39,889	\$37,421	\$46,557
A/E Ratio based on Best Fit	110.9%	108.7%	107.8%	109.5%
Multiplier based on LFCT	110.9%	108.7%	106.7%	109.5%
Recommended Multiplier	111.0%	109.0%	107.0%	109.0%
Expected Deaths based on PUB(10) Median Tables by Occupation adjusted by Multiplier	\$56,274	\$43,466	\$40,752	\$50,745
A/E Ratio	98.9%	99.8%	99.0%	100.5%

As shown, the current assumptions actually produced very good fits. And the new assumptions don't make a meaningful difference.

Our standard approach would be to use the Multiplier based on LFCT, rounded down to the nearest percent. However, for male teachers, because the actual was higher and the recommended multiplier was closer to the rounded up value, we have recommended the rounded up value.

We also examined the results in five-year age groups, checking how well the pattern in the table matched actual experience. Most importantly, we look at life expectancies in the actual data and the tables, looking for a good fit. A summary of the comparison of static life expectancies is shown below:

Group	Other Employees		Teachers	
	Male	Female	Male	Female
Life Expectancy of 65 year old retiree in years (current assumption)	19.64	22.09	21.55	23.20
Life Expectancy of 65 year old retiree in years (actual, smoothed)	19.68	22.05	21.33	23.27
Life Expectancy of 65 year old retiree in years (proposed)	19.67	22.02	21.27	23.22
A/E ratio	100.1%	100.1%	100.3%	100.2%

Without Projection, Central Year 2019

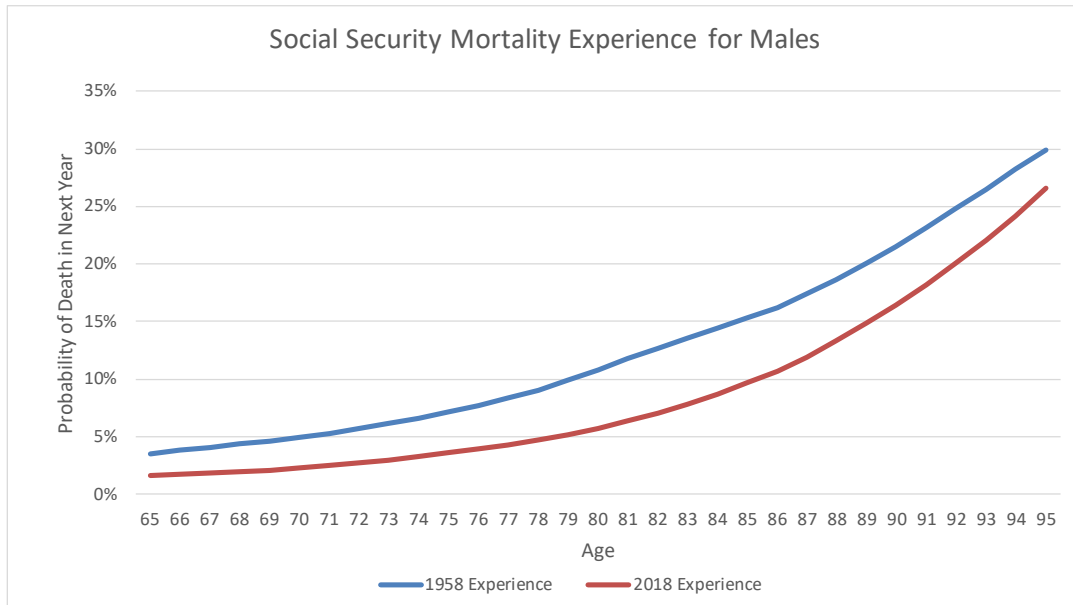
As shown, this produces a reasonable match. More detail is shown on the tables in Section VI.

Recommended Mortality Improvement Assumption

We use a fully generational approach to this assumption. Because of this strategy of building-in continuous improvement, life expectancies for today's younger active members are expected to be materially longer than those of today's retirees, and this provides substantial stability and dependability on costs and

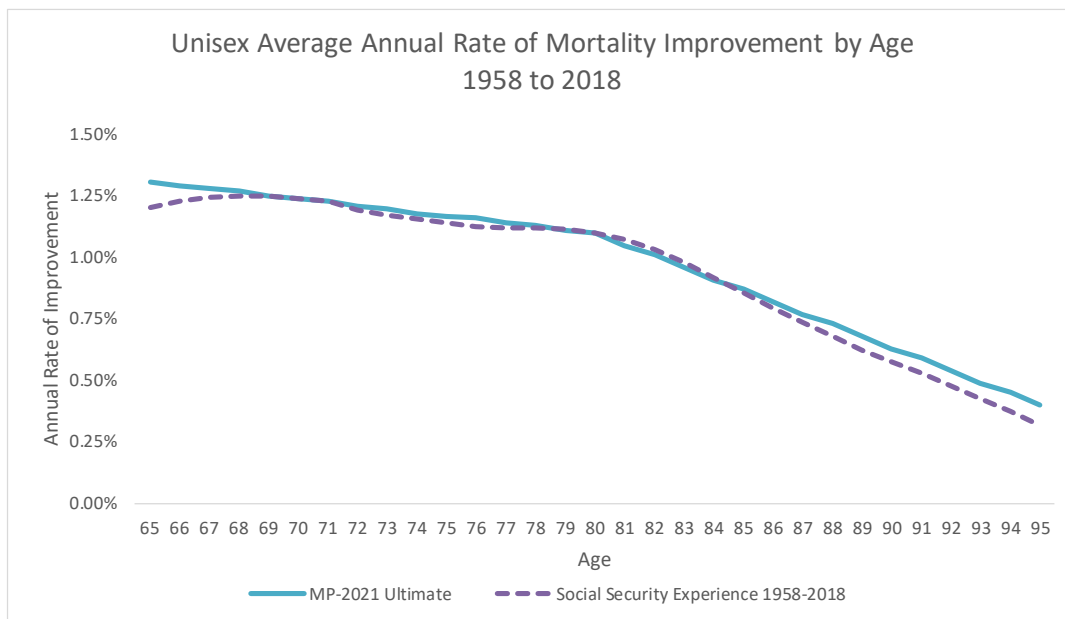


liabilities. The following graph compares the probability of mortality by age in 1958 versus 2018 from the national social security database. There has clearly been a significant amount of improvement in longevity over that time span.



The current mortality assumption includes annual improvements in mortality based on the MP-2021 Ultimate Projection Scale to reflect the expected mortality improvement. We are recommending no change in this assumption. The projection scales published by the Society of Actuaries (SOA) incorporate a complex two-dimensional matrix of rates of improvement that vary by age, gender, and year. Ultimately, the projection scale (Scale MP-2021) goes to an annual improvement that varies by age, but not gender or year, in years 2037 and later. We refer to these rates as the ultimate rates. Note that Scale MP-2021 is the most recent mortality improvement table published by the SOA. Our recommendation is to continue using the current mortality improvement scale. We believe the ultimate portion of the MP-2021 scale reflects a reasonable long-term forecast for mortality improvement and is consistent with historical trends.

Specifically, the pattern is 1.35% of the rate for ages 62 and younger, decreasing linearly to 1.10% at age 80, further decreasing linearly to 0.40% at age 95, and then decreasing linearly to 0.00% at age 115 (and thereafter). We have compared the recommended projection scale with actual mortality improvement from the most recent 60 years of experience of the U.S. Social Security system and found them (blue and green lines) to be reasonably consistent as shown in the following graph. Note that we have not shown years past 2018 to avoid any pandemic impact.



The following is a table with the life expectancy for a retired member who attains age 65 based on the proposed assumption set, by calendar year. As shown, the life expectancy is expected to increase into the future.

Proposed Mortality Assumption - Life Expectancy for an Age 65 Retiree in Years					
Group	Year of Retirement				
	2026	2031	2036	2041	2046
Other Employees – Male	21.1	21.5	21.8	22.2	22.5
Other Employees - Female	23.5	23.8	24.2	24.5	24.8
Teachers - Male	22.7	23.0	23.3	23.7	24.3
Teachers - Female	24.6	24.9	25.2	25.5	26.1

With Generational Projection

Post-retirement mortality rates (disabled retirees)

This is a relatively minor assumption, and it has little impact on the liabilities of ERSRI. We are recommending this assumption continue to use the PUB(16) set of tables, using 100% of the disabled tables by occupation.

Active mortality rates

This is a relatively minor assumption, and it has little impact on the liabilities of ERSRI. We are recommending this assumption continue to use the PUB(16) set of tables, using 100% of the median active employee tables by occupation.



Disability rates

We analyzed disability separately for males and females, State Employees, Teachers, MERS General and MERS P&F, and ordinary and accidental disability.

We compared the number of actual and expected disabilities by group, taking into account the fact that members with less than five years of service and members eligible for retirement are not eligible for ordinary disability.

For disability, there is often a lag time between when the member leaves active service to when the member is approved for disability. In many cases, this timeframe can span over a valuation cycle, meaning a member is active in year 1, shows as an inactive in year 2, and then a disabled member in year 3. We have used the actual disabled records in the 2025 valuation data for members with dates of disability in the six-year period January 1, 2019 through December 31, 2024 as an approximation of our actual disabilities as the FY25 experience likely doesn't completely include members who are in processing as of June 30, 2025.

For this assumption, an A/E close to, but less than, 100% is preferable. The analysis shows a reasonably close match across the groups, given the relatively small numbers. However, several of the groups either show less or more disabilities than expected. We have made recommendations and for those have provided the A/E ratio based on the proposed assumptions. For most groups, the size is too small to give full credibility so in most cases the recommended assumption only partially reflects the recent experience. Although there are detailed tables on each of the groups in Section VI, here are tables showing some summary information:

Group/Type	Actual Number	Expected Number	A/E Ratio	A/E on Proposed Assumption
State/Corr male ordinary	83	83	92%	
State/Corr female ordinary	85	97	88%	
State/Corr male accidental	8	22	36%	50%
State/Corr female accidental	18	26	69%	95%
Teacher male ordinary	11	29	38%	79%
Teacher female ordinary	94	116	81%	96%
Teacher male accidental	3	4	75%	60%
Teacher female accidental	23	12	192%	105%
MERS General male ordinary	22	31	71%	88%
MERS General female ordinary	16	51	31%	80%
MERS General male accidental	18	21	86%	
MERS General female accidental	12	11	109%	86%
MERS P&F ordinary	16	8	200%	89%
MERS P&F accidental	71	57	125%	100%
Total disabilities	480	575	83%	91%

In addition, for groups that have historically had ages ranges that were eligible for unreduced retirement, but now are not, the current assumptions add 2% to the probability of ordinary disability in those age ranges to reflect the reality that some members who retired under old eligibility provisions would have qualified for



disability, but did not apply because there was no need to do so. We recommend no change to this part of the assumption set.

These changes will have a minor impact on the liabilities and contribution requirements. Details are shown in Section VI.

Retirement pattern

The current assumptions were estimates of the impact the changes from RIRSA would have on behavior, and had several categories based on cohorts of members becoming eligible to retire. In general, most of the reasons to have the various cohorts has passed as we are now 15 years past the passage of RIRSA. We have made adjustments and simplifications as appropriate. For this analysis, the data was weighted by the potential liability of the member, so that members with more service and higher salaries influenced the results proportionately more. The following is a summary of the data. Details are shown in Section VI.

Group/Type	Actual Number	Expected Number	A/E Ratio	A/E on Proposed Assumption
State Employees	\$6,342	\$7,470	85%	
Corrections	991	898	110%	94%
Teacher	5,538	4,688	118%	98%
MERS General	2,303	2,411	96%	
MERS P&F	792	715	111%	101%
State Police	73	124	59%	83%
Judges	9	9	100%	
Total Retirements	\$16,048	\$16,315	98%	92%

\$ in 100,000s of potential liability

Termination rates

Termination rates reflect members who leave for any reason other than death, disability or service retirement. They apply whether the termination is voluntary or involuntary, whether the member is vested or non-vested, and whether the member takes a refund or keeps his/her account balance on deposit and takes a deferred benefit.

We use separate termination rates for males and females and for all groups. The current rates are structured as a function of service. No terminations are assumed once a member becomes eligible for retirement. The current tables were based on ERSRI experience and developed in prior experience studies. For this analysis, we have extended the experience period to ten years as termination patterns tend to be very cyclical with the overall economy. We also weight the data based on the liability of the member.

Group/Type	Actual Liability Turnover	Expected Liability Turnover	A/E Ratio	A/E on Proposed Assumption
State Employees	\$386,880	\$326,886	118%	109%
Corrections	47,415	43,877	108%	104%
Teachers	554,373	442,463	125%	112%



MERS General	193,490	140,620	138%	116%
MERS P&F	182,689	107,642	170%	138%
Total Termination	\$1,360,646	\$1,064,302	128%	114%

\$ in 000s

As shown, similar to trends in peer retirement systems, turnover has increased compared to historical trends. We have moved the turnover assumptions approximately half way to the target range of 105% for the individual groups. Full detail in the tables in Section VI.

Spousal age difference

Currently, we assume that male members are three years older than their spouses and female members are three years younger than their spouses. This is reasonable, based on general census statistics and we are not recommending changing this assumption.

Refund of contributions

We currently assume that members who are vested and terminate in the future will choose the more valuable of a refund or a deferred annuity. This is a bit conservative, since some people do choose a refund when the deferred benefit is worth more, but we are recommending no change to this assumption.

Other assumptions

There are other technical assumptions made in the course of a valuation, such as the timing of terminations and retirements during the year, and the timing of pay increases. We reviewed these and are recommending no changes.

Actuarial cost method

The individual Entry Age Normal cost method (EAN) is the current funding method being used to allocate the actuarial costs of the Fund. Under this method, the normal cost for each member is determined to be the level percentage of payroll which, if contributed from the date of entry to the date of retirement, would accumulate assets sufficient to pay the retirement benefits when due. Use of this method is required by statute. The Entry Age Normal method will generally produce relatively level contribution amounts as a percentage of payroll from year to year, and allocates costs among various generations of taxpayers in a reasonable fashion. It is by far the most commonly used actuarial cost method for large public retirement systems. We continue to believe this is the best funding method for ERSRI and recommend no change.

Actuarial Value of Assets

Actuaries generally recommend using a smoothed actuarial value of assets (AVA), rather than market value (MVA), in order to dampen the fluctuations in measurements such as the required contribution amount and the funded status of the system.

The current method smooths the differences between the expected returns (based on the annual investment return assumption) and actual returns, net of expenses, over a five-year period. For example, if the actual return is 12.00% in one year, then currently 7.00% is reflected immediately in the AVA, and the other 5.00% is recognized in 20% increments over five years, beginning with 20% for the current year.



The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continuing to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses.

Amortization period

The unfunded actuarial accrued liability from the 2011 pension reform is being amortized over a closed 25-year period from June 30, 2010. The remaining amortization period is 10 years. New gains and losses will be “laddered” on individual 20 year bases once the period on the large base decreases below 20. We are not recommending any change to this in connection with the current experience study.

Units that are overfunded have their past layers eliminated under the idea that there is no longer an UAAL and thus no longer a need to systematically amortize it, and instead a credit can be given enough so that the proportionate amount of surplus would remain the same from year to year. For example, if a unit is currently 110% funded, the credit would be enough so that the unit would be expected to remain at 110% funded the next year. We recommend no change.

Election Assumptions for the Teacher Survivor Benefit plan

We reviewed the current election and family distribution assumptions for the Teacher Survivor Benefit Plan. The current assumptions were developed in the previous experience study and are tracking well with experience, thus we are not recommending any changes.

	By Attained Age									
	20	25	30	35	40	45	50	55	60	65
Spouse Only	5%	14%	14%	10%	11%	15%	32%	75%	75%	70%
Spouse and 1 Child	5%	12%	20%	17%	22%	23%	18%	0%	0%	0%
Spouse and 2 or More Children	4%	13%	36%	46%	41%	35%	24%	0%	0%	0%
One Child Alone	5%	6%	3%	7%	8%	10%	6%	0%	0%	0%
Two Children Alone	3%	7%	4%	7%	6%	3%	1%	0%	0%	0%
Three or More Children Alone	1%	4%	4%	5%	4%	1%	1%	0%	0%	0%
Dependent Parent Alone	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
No Dependents/Refund	77%	44%	19%	8%	8%	13%	18%	25%	25%	30%



SECTION IV

ACTUARIAL IMPACT OF RECOMMENDATIONS

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Section IV

Impact of Proposed Changes to Actuarial Assumptions

Under Rhode Island General Laws, the employer contribution rates are certified annually by the State of Rhode Island Retirement Board. These rates are determined actuarially, based on the plan provisions in effect as of the valuation date, the actuarial assumptions adopted by the Board, and the methodology set forth in the statutes. The Board’s current policy is that the contribution rates determined by a given actuarial valuation become effective two years after the valuation date. For example, the rates determined by the June 30, 2026 actuarial valuation will be applicable for the year beginning July 1, 2028 and ending June 30, 2029.

The actuarial cost method and the amortization period are set by statute. Contribution rates and liabilities are computed using the Entry Age Normal actuarial cost method. The employer contribution rate is the sum of two pieces: the employer normal cost rate and the amortization rate. The normal cost rate is determined as a percent of pay. The employer normal cost is the difference between this and the member contribution rate. The amortization rate is determined as a level percent of pay. It is the amount required to amortize the unfunded actuarial accrued liability over a closed period. The amortization rate is adjusted for the two-year deferral in contribution rates. Separate employer contribution rates are determined for State Employees, Teachers, Judges, State Police, and individual MERS units.

Effect of the proposed assumptions

We are not recommending the June 30, 2025 valuation be restated, but instead, these recommended assumptions be used in this upcoming June 30, 2026 valuation. Shown below is a table that compares key results from the June 30, 2025 actuarial valuation with these same results recalculated using the recommended actuarial assumptions and methods. As you can see, the assumption changes generally increase the contribution requirements and liabilities.

State Employees			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	7.87%	8.01%	0.14%
Unfunded actuarial accrued liability	\$1,962 million	\$1,969 million	\$6 million
Funded ratio	63.9%	63.8%	-0.1%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	27.97%	28.17%	0.20%
b. Estimated dollar amount	\$275.2 million	\$277.2 million	\$2.0 million



Teachers			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	6.98%	7.08%	0.10%
Unfunded actuarial accrued liability	\$2,411 million	\$2,427 million	\$16 million
Funded ratio	67.9%	67.8%	-0.1%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	25.16%	25.37%	0.21%
b. Estimated dollar amount	\$317.9 million	\$320.6 million	\$2.7 million

SPRBT			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	20.56%	20.40%	-0.16%
Unfunded actuarial accrued liability	\$31 million	\$29 million	-\$2 million
Funded ratio	88.4%	89.1%	0.7%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	21.08%	20.38%	-0.70%
b. Estimated dollar amount	\$7.3 million	\$7.0 million	-\$0.2 million

JRBT			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	30.44%	31.01%	0.57%
Unfunded actuarial accrued liability	-\$7 million	-\$8 million	-\$1 million
Funded ratio	106.3%	106.8%	0.5%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	15.94%	16.32%	0.38%
b. Estimated dollar amount	\$2.3 million	\$2.3 million	\$0.1 million



MERS General			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	7.30%	7.16%	-0.14%
Unfunded actuarial accrued liability	\$126 million	\$125 million	-\$1 million
Funded ratio	91.50%	91.50%	0.0%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	10.20%	10.05%	-0.15%
b. Estimated dollar amount	\$34.3 million	\$33.8 million	-\$0.5 million

MERS Police and Fire			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Normal cost	19.54%	20.25%	0.71%
Unfunded actuarial accrued liability	\$121 million	\$131 million	\$10 million
Funded ratio	89.0%	88.2%	-0.8%
Projected FY 2028 Employer Contribution			
a. Percent of payroll	18.01%	19.19%	1.19%
b. Estimated dollar amount	\$30.8 million	\$32.9 million	\$2.0 million

Teacher Survivor Benefit Plan			
Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Change
Unfunded actuarial accrued liability	-\$245 million	-\$250 million	-\$5 million
Funded ratio	202.3%	206.4%	4.0%



SECTION V

SUMMARY OF ASSUMPTIONS AND METHODS INCORPORATING THE RECOMMENDED ASSUMPTIONS

Section V

Summary of Assumptions and Methods Incorporating the Recommended Assumptions

I. Valuation Date

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The actuarial valuation uses the Entry Age actuarial cost method. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) a rate that will amortize the unfunded actuarial accrued liability (UAAL).

1. First, the actuarial present value of future benefits is determined by discounting the projected benefits for each member back to the valuation date using the assumed investment return rate as the discount rate. For active members, the projected benefits are based on the member's age, service, gender and compensation, and based on the actuarial assumptions. The calculations take into account the probability of the member's death, disability, or termination of employment prior to becoming eligible for a retirement benefit, as well as the possibility of the member will remain in service and receive a service retirement benefit. Future salary increases are anticipated. The present value of the expected benefits payable to all active members is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits. Liabilities for future members are not included.
2. The employer contributions required to support the benefits are determined as a level percentage of salary, and consist of a normal contribution and an amortization contribution.
3. The normal contribution is determined using the Entry Age Normal method. Under this method, a calculation is made to determine the rate of contribution which, if applied to the compensation of each individual member during the entire period of anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. The salary-weighted average of these rates is the normal cost rate. This calculation reflects the plan provisions that apply to each individual member.
4. The employer normal cost rate is equal to (i) the normal cost rate, minus (ii) the member contribution rate.
5. The actuarial accrued liability is equal to the present value of all benefits less the present value of future normal costs. The unfunded actuarial accrued liability (UAAL) is then determined as (i) the actuarial accrued liability, minus (ii) the actuarial value of assets.



6. The amortization contribution rate is the level percentage of payroll required to reduce the UAAL to zero over the remaining amortization period. In conjunction with The Rhode Island Retirement Security Act of 2011, the amortization period was reset to 25 years as of June 30, 2010. The employer contribution rate determined by this valuation will not be effective until two years after the valuation date. The determination of the contribution rate reflects this deferral. The unfunded actuarial accrued liability (UAAL) and covered payroll are projected forward for two years, and we then determine the amortization charge required to amortize the UAAL over the remaining amortization period from that point. In projecting the UAAL, we increase the UAAL for interest at the assumed rate and we decrease it for the amortization payments. The amortization payments for these two years are determined by subtracting the current employer normal cost from the known contribution rates for these years, based on the two prior actuarial valuations. Contributions are assumed to be made monthly throughout the year.

III. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses.

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 7.00% per year, compounded annually, composed of an assumed 2.50% inflation rate and a 4.50% net real rate of return. This rate represents the assumed return, net of all investment and administrative expenses.
2. Salary increase rate:

For State Employees: The sum of (i) a 3.25% wage inflation assumption (composed of a 2.50% price inflation assumption, a 0.50% general productivity increase, and a 0.25% individual productivity increase), and (ii) a service-related component as shown on next page.

For Teachers: The sum of (i) a 2.75% wage inflation assumption (composed of a 2.50% price inflation assumption and a 0.25% additional general increase), and (ii) a service-related component as shown on next page.



Salary Increase Rates						
Service	State Employees		Correctional Officers		Teachers	
	Service-Related Component	Total Increase	Service-Related Component	Total Increase	Service-Related Component	Total Increase
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	1.00%	4.25%	2.00%	5.25%	5.50%	8.25%
2	2.00%	5.25%	3.00%	6.25%	5.50%	8.25%
3	3.00%	6.25%	4.00%	7.25%	5.50%	8.25%
4	2.75%	6.00%	3.75%	7.00%	5.50%	8.25%
5	2.75%	6.00%	3.75%	7.00%	5.50%	8.25%
6	2.50%	5.75%	3.50%	6.75%	5.25%	8.00%
7	1.25%	4.50%	2.25%	5.50%	5.00%	7.75%
8	1.00%	4.25%	2.00%	5.25%	5.00%	7.75%
9	1.00%	4.25%	2.00%	5.25%	5.00%	7.75%
10	1.00%	4.25%	2.00%	5.25%	2.50%	5.25%
11	1.00%	4.25%	1.50%	4.75%	1.25%	4.00%
12	2.00%	5.25%	2.50%	5.75%	0.75%	3.50%
13	1.25%	4.50%	1.75%	5.00%	0.50%	3.25%
14	1.00%	4.25%	1.50%	4.75%	0.50%	3.25%
15	1.00%	4.25%	1.50%	4.75%	0.50%	3.25%
16	1.00%	4.25%	1.00%	4.25%	0.25%	3.00%
17	0.50%	3.75%	1.00%	4.25%	0.25%	3.00%
18	0.50%	3.75%	1.00%	4.25%	0.25%	3.00%
19	0.50%	3.75%	1.00%	4.25%	0.25%	3.00%
20	0.50%	3.75%	1.00%	4.25%	0.50%	3.25%
21	0.50%	3.75%	1.00%	4.25%	0.10%	2.85%
22	0.25%	3.50%	1.00%	4.25%	0.10%	2.85%
23	0.25%	3.50%	1.00%	4.25%	0.10%	2.85%
24	0.25%	3.50%	1.00%	4.25%	0.10%	2.85%
25 or more	0.00%	3.25%	0.00%	3.25%	0.00%	2.75%



For MERS General: The sum of (i) a 3.10% wage inflation assumption (composed of a 2.50% price inflation assumption and a 0.60% additional general increase), and (ii) a service-related component as shown below.

General Employees		
Years of Service	Service-Related Component	Total Increase
1	4.25%	7.35%
2	3.25	6.35
3	3.00	6.10
4	2.75	5.85
5	2.50	5.60
6	2.25	5.35
7	1.50	4.60
8	1.00	4.10
9-10	0.75	3.85
11-15	0.50	3.60
16-20	0.20	3.30
20-24	0.10	3.20
16 or more	0.00	3.10

For police/fire employees, the sum of (i) a 3.75% wage inflation assumption (composed of a 2.50% price inflation assumption, a 0.50% general productivity increase, and a 0.75% individual productivity increase), and (ii) a service-related component as shown below.

Police/Fire Employees		
Years of Service	Service-Related Component	Total Increase
1	10.00%	13.75%
2	9.00	12.75
3	7.00	10.75
4	4.00	7.75
5	2.50	6.25
6	3.00	6.75
7-20	0.50	4.25
21-24	0.25	4.00
25 or more	0.00	3.75



Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period year following the valuation date is equal to the reported pay for the prior year, increased by the salary increase assumption. For employees with less than one year of service, the reported rate of pay is used rather than the fiscal year salary paid.

3. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.50% for State Employees, MERS P&F and MERS General and 2.00% for Teachers per year. This increase rate is solely due to the effect of wage inflation on salaries, with no allowance for future membership growth.
4. Post-retirement Benefit Increase: Post-retirement benefit increases are assumed to be 2.10%, per annum while the plan has a funding level that exceeds 75%; however, an interim adjustment equal to 25% of the total increase will be granted while the plan remains less than 75% funded. The actual amount of the COLA is determined based on 50% of the plan's five-year average investment rate of return minus 5.00% which will range from zero to 4.0%, and 50% of the lesser of 3% or last year's CPI-U increase for a total maximum increase of 3.50%.

B. Demographic Assumptions

1. Post-termination mortality rates (non-disabled)
 - a. Male State Employees, MERS General and MERS P&F: PUB-16 Median Table for Healthy General Employee Males, loaded by 111%, projected with Scale MP2021 with immediate convergence.
 - b. Female State Employees, MERS General and MERS P&F: PUB-16 Median Table for Healthy General Employee Females, loaded by 109%, projected with Scale MP2021 with immediate convergence.
 - c. Male teachers: PUB-16 Median Table for Healthy Teacher Males, loaded by 107%, projected with Scale MP2021 with immediate convergence.
 - d. Female teachers: PUB-10 Median Table for Healthy Teacher Females, loaded by 109%, projected with Scale MP2021 with immediate convergence.

The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years					
Group	Year of Retirement				
	2026	2031	2036	2041	2046
State Employee - Male	21.1	21.5	21.8	22.2	22.5
State Employee - Female	23.5	23.8	24.2	24.5	24.8
Teacher - Male	22.7	23.0	23.3	23.7	24.3
Teacher - Female	24.6	24.9	25.2	25.5	26.1

2. Post-retirement mortality (disabled lives):
 - a. State Employees: Sex distinct PUB-16 Tables for General Employees by Occupation, projected with Scale MP2021 with immediate convergence.
 - b. Teachers: Sex distinct PUB-16 Tables for Teachers Employees by Occupation for females, projected with Scale MP2021 with immediate convergence.

3. Pre-retirement mortality:
 - a. State Employees: Sex distinct PUB-16 Tables for General Employees by Occupation, projected with Scale MP2021 with immediate convergence.
 - b. Teachers: Sex distinct PUB-16 Tables for Teachers Employees by Occupation for females, projected with Scale MP2021 with immediate convergence.
 - c. Male MERS employees: PUB-16 Tables for Employees by Occupation for males, projected with Scale MP2021 with immediate convergence.
 - d. Female MERS employees: PUB-16 Tables for Employees by Occupation for females, projected with Scale MP2021 with immediate convergence.

4. Disability rates: Sample rates are shown below. Ordinary disability rates are not applied to members eligible for retirement. One half the accidental disabilities are assumed to be totally and permanently disabled from any occupation.

Age	Number of Disabilities per 1,000							
	State Ordinary Males	State Accidental Males	State Ordinary Females	State Accidental Females	Teachers Ordinary Males	Teachers Accidental Males	Teachers Ordinary Females	Teachers Accidental Females
25	0.59	0.05	0.45	0.05	0.14	0.05	0.27	0.05
30	0.72	0.07	0.55	0.07	0.17	0.06	0.33	0.06
35	0.98	0.09	0.75	0.09	0.23	0.08	0.45	0.08
40	1.43	0.13	1.10	0.13	0.33	0.11	0.66	0.11
45	2.34	0.22	1.80	0.22	0.54	0.18	1.08	0.18
50	3.97	0.37	3.05	0.37	0.92	0.31	1.83	0.31
55	6.57	0.61	5.05	0.61	1.52	0.51	3.03	0.51
60	9.17	0.85	7.05	0.85	2.12	0.71	4.23	0.71
65	15.02	1.39	11.55	1.39	3.47	1.16	6.93	1.16

Age	MERS General, Ordinary, Males	MERS General, Accidental, Males	MERS General, Ordinary, Females	MERS General, Accidental, Females	MERS P&F, Ordinary, Males and Females	MERS P&F, Accidental, Males and Females
25	0.36	0.14	0.18	0.05	0.68	1.87
30	0.44	0.17	0.22	0.07	0.88	2.42
35	0.60	0.23	0.30	0.09	1.16	3.19
40	0.88	0.33	0.44	0.13	1.76	4.84
45	1.44	0.54	0.72	0.22	2.88	7.92
50	2.44	0.92	1.22	0.37	4.84	13.31
55	4.04	1.52	2.02	0.61	4.84	13.31
60	5.64	2.12	2.82	0.85	4.84	13.31
65	9.24	3.47	4.62	1.39	4.84	13.31

In addition, for General Employees and Teachers that are age 55 with 20 Years of service and not eligible to retire, another 1% is added to the rates above. In addition, if the member is above age 60, another 1% is added to the rates above.

5. Termination rates (for causes other than death, disability, or retirement) are a function of the member's service. Termination rates are not applied to members eligible for retirement. Rates are shown below:

Service	State Employees	Correctional Officers	Teachers	MERS General	MERS P&F
1	0.129241	0.095000	0.160000	0.159956	0.100000
2	0.121030	0.066500	0.102321	0.139564	0.089040
3	0.097692	0.054523	0.075216	0.121440	0.070224
4	0.084039	0.047115	0.060462	0.105441	0.059219
5	0.074353	0.042782	0.051042	0.091426	0.051410
6	0.066840	0.039707	0.044446	0.079252	0.045354
7	0.060702	0.037323	0.039538	0.068777	0.040405
8	0.055511	0.035374	0.035727	0.059858	0.036219
9	0.051016	0.033727	0.032672	0.052354	0.032595
10	0.047050	0.032299	0.030161	0.046121	0.029398
11	0.043502	0.031040	0.028056	0.041018	0.026538
12	0.040293	0.029915	0.026263	0.036903	0.023950
13	0.037363	0.028896	0.024715	0.033632	0.021589
14	0.034668	0.027966	0.023363	0.031064	0.019416
15	0.032173	0.027110	0.022171	0.029057	0.017405
16	0.029850	0.026319	0.021112	0.027468	0.015533
17	0.027677	0.025581	0.020162	0.026155	0.013781
18	0.025636	0.024891	0.019306	0.024976	0.012134
19	0.023711	0.024243	0.018530	0.023788	0.010584
20	0.021891	0.023632	0.017822	0.022448	0.000000
21	0.020164	0.023055	0.017174	0.020816	0.000000
22	0.018521	0.022506	0.016579	0.018748	0.000000
23	0.016954	0.021985	0.016029	0.016103	0.000000
24	0.015458	0.021488	0.015519	0.012737	0.000000
25	0.014025	0.021013	0.160000	0.008508	0.000000



6. Retirement rates (unreduced):

For State Employees (except Correctional Officers): A 20% per year retirement probability for members who is eligible for unreduced retirement before age 62, a 25% retirement probability for those retired between ages 62 to 64, then 30% for members aged 65 and up. 100% of members aged 75 and above are assumed to retire immediately.

For Teachers: a flat 30% per year retirement probability for members between before age 69, and a flat 35% per year retirement probability for members at age 70 or older eligible for unreduced retirement. 100% of members aged 75 and above are assumed to retire immediately.

For MERS General Employees: a flat 20% per year retirement probability for members eligible for unreduced retirement. A 25% retirement probability will be applied if they have reached age 65.

For MERS P&F: Unisex, service based rates are used for police and fire.

Service	Retirement Probabilities
25	17.0%
26	20.0%
27	23.0%
28	24.0%
29	24.0%
30-34	29.0%
35-39	39.0%
40+	100.0%

100% of members eligible to retire as of June 30, 2012 are assumed to retire once they reach 35 years of service. All members not eligible to retire as of June 30, 2012 are assumed retire at SSNRA, if eligible.

Members are eligible to receive an enhanced benefit if they are at least age 57 with 30 or more years of service. In the year prior to becoming eligible for this provision, no members are assumed to retire

For Correctional Officers: A set of unisex rates, indexed by service, as shown below. 100% of officers who have attained Social Security normal retirement age and have at least 5 years of service are assumed to retire.

Corrections	
Service	Ret. Rate
25	12.00%
26	7.00%
27	8.00%
28	9.00%
29	10.00%
30	11.00%
31	12.00%
32	13.00%
33	14.00%
34	15.00%
35	16.00%
36	17.00%
37	18.00%
38	19.00%
39	20.00%
40	100.00%

7. Reduced retirement rates: No early retirements are assumed for police and fire. Members are eligible to retire with reduced benefit five years prior to their normal retirement age. Rates are on the years from normal retirement age, as shown below:

Year from Normal Retirement Age	Ret. Rate
5	1%
4	1%
3	1%
2	2%
1	3%

C. Other Assumptions

1. Valuation payroll (used for determining the amortization contribution rate): Prior aggregate fiscal year payroll projected forward one year using the overall payroll growth rate.
2. Percent married: For State Employees and Teachers, 85% of employees are assumed to be married. For MERS employees (both MERS General and MERS P&F), 80% of employees are assumed to be married.
3. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
4. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity. The spousal annuity death benefit for vested married participants is valued using a static optional form conversion factor of 0.84 and 0.78 for males and females respectively.
5. For active death benefits, the liability is initially calculated based on the ordinary death benefit provisions, and then a 7.5% load is applied to account for duty related benefits.
6. Percent electing deferred termination benefit: Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
7. Recovery from disability: None assumed.



8. Remarriage: It is assumed that no surviving spouse will remarry and there will be no children's benefit.
9. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available.
10. Investment and administrative expenses: The assumed investment return rate represents the anticipated net return after payment of all investment and administrative expenses.
11. Inactive members: Liabilities for inactive members are approximated as a multiple of their member contribution account balances. For non-vested inactive members, the multiple is 1.0. For vested inactive members, the multiple is 8.0 for members with 25 or more years of service, 3.0 for vested inactive members age 45 or older with less than 25 years of service, and 1.0 for other vested inactive members younger than age 45.
12. Decrement timing: For all non-teachers employees (State Employees, MERS General, and MERS P&F), decrements are assumed to occur at the middle of the year. For Teachers the retirement and termination decrements are assumed to occur at the beginning of the year, while death and disability are assumed to occur at the middle of the year. For members who terminated service after June 30, 2017, the expected liability at termination has been carried forward with interest from the last valuation the member was active.
13. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
14. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
15. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
16. Benefit Service: All members are assumed to accrue one year of eligibility service each year.
17. All calculations were performed without regard to the compensation limit in IRC Section 401(a)(17) and the benefit limit under IRC Section 415.



18. For purposes of the projection it was assumed that employees entering the Plan in the future would reflect the characteristics of employees who entered the Plan during the last six years and that the active population would remain constant.
19. For the special post-retirement police and fire survivor benefit, we have assumed 80% of members will have a spouse at the time of retirement and 10% of those members would choose option 1 or option 2.

D. Participant Data

Participant data was supplied on electronic files. There are separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active members included name, an identification number, gender, a code indicating whether the member was active or inactive, a code indicating employee type (State Employee, Teacher, MERS General or MERS P&F), date of birth, service, salary, date of last contribution, accumulated member contributions without interest, accrued benefit multiplier as of June 30, 2014, Final Average Compensation as of June 30, 2012, Article 7 Retirement Date, and the Rhode Island Retirement Security Act Retirement Date. For retired members and beneficiaries, the data included name, an identification number, gender, date of birth, date of retirement, amount of benefit, the amount of adjustment after age 62 for anyone electing the Social Security option, a code indicating the option elected and the type of retiree (service retiree, disabled retiree, beneficiary), and if applicable, the joint pensioner's date of birth and gender.

Salary supplied for the current year was based on the earnings for the fiscal year preceding the valuation date. However, for members with less than one year of service, the current rate of salary was used. This salary was adjusted by the salary increase rate for one year.

In defining who was an active member, members with a date of last contribution in the final quarter of the fiscal year were considered active. Otherwise, the member was defined as inactive.

To correct for incomplete and inconsistent data, we first attempted to pulled data from prior valuation files and then made general assumptions to fill in the rest. These modifications had no material impact on the results presented.

SECTION VI

SUMMARY OF DATA AND EXPERIENCE

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General Employees
POST-RETIREMENT MORTALITY - HEALTHY MALE
Weighted by Annual Benefits in \$000s

Age (1)	Actual Death (2)	Total Benefits (3)	Actual Rate (4)	Assumed Rate		Expected Benefits		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 293	\$ 95,092	0.0031	0.0050	0.0053	\$ 473	\$ 503	62%	58%
60-64	2,028	237,901	0.0085	0.0071	0.0077	1,696	1,820	120%	111%
65-69	5,207	404,533	0.0129	0.0112	0.0111	4,511	4,493	115%	116%
70-74	7,059	397,665	0.0178	0.0193	0.0183	7,668	7,294	92%	97%
75-79	9,263	283,323	0.0327	0.0343	0.0335	9,706	9,477	95%	98%
80-84	9,957	164,672	0.0605	0.0624	0.0620	10,278	10,211	97%	98%
85-89	11,271	97,156	0.1160	0.1131	0.1143	10,991	11,105	103%	101%
90-94	7,820	41,338	0.1892	0.1910	0.2032	7,895	8,401	99%	93%
95-99	2,733	9,469	0.2886	0.2914	0.3136	2,759	2,970	99%	92%
Totals	\$ 55,631	\$ 1,731,150	0.0321	0.0323	0.0325	\$ 55,976	\$ 56,274	99%	99%
65-74	\$ 12,266	\$ 802,198	0.0153	0.0152	0.0147	\$ 12,178	\$ 11,788	101%	104%
75-84	\$ 19,220	\$ 447,995	0.0429	0.0446	0.0439	\$ 19,984	\$ 19,688	96%	98%
85-94	\$ 19,091	\$ 138,495	0.1378	0.1364	0.1408	\$ 18,886	\$ 19,506	101%	98%



General Employees
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
Weighted by Annual Benefits in \$000s

Age (1)	Actual Death (2)	Total Benefits (3)	Actual Rate (4)	Assumed Rate		Expected Benefits		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 132	\$ 42,208	0.0031	0.0032	0.0034	\$ 140	\$ 150	94%	88%
60-64	683	208,493	0.0033	0.0045	0.0046	990	987	69%	69%
65-69	3,172	369,393	0.0086	0.0076	0.0070	2,874	2,675	110%	119%
70-74	4,363	355,639	0.0123	0.0134	0.0127	4,768	4,544	92%	96%
75-79	5,472	262,645	0.0208	0.0239	0.0239	6,243	6,252	88%	88%
80-84	8,295	170,409	0.0487	0.0437	0.0461	7,415	7,804	112%	106%
85-89	9,027	107,061	0.0843	0.0834	0.0876	8,881	9,310	102%	97%
90-94	8,507	55,256	0.1540	0.1519	0.1547	8,107	8,270	105%	103%
95-99	3,723	14,929	0.2494	0.2415	0.2452	3,422	3,473	109%	107%
Totals	\$ 43,374	\$ 1,586,032	0.0273	0.0270	0.0274	\$ 42,840	\$ 43,466	101%	100%
65-74	\$ 7,535	\$ 725,032	0.0104	0.0105	0.0100	\$ 7,642	\$ 7,219	99%	104%
75-84	\$ 13,768	\$ 433,054	0.0318	0.0315	0.0325	\$ 13,658	\$ 14,056	101%	98%
85-94	\$ 17,534	\$ 162,317	0.1080	0.1047	0.1083	\$ 16,989	\$ 17,580	103%	100%



TEACHERS
POST-RETIREMENT MORTALITY - HEALTHY MALE
Weighted by Annual Benefits in \$000s

Age	Actual Death	Total Benefits	Actual Rate	Assumed Rate		Expected Benefits		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	\$ 11	\$ 9,474	0.0012	0.0026	0.0029	\$ 24	\$ 27	46%	41%
60-64	359	89,906	0.0040	0.0041	0.0047	373	423	96%	85%
65-69	2,147	274,234	0.0078	0.0071	0.0078	1,960	2,126	110%	101%
70-74	4,871	368,085	0.0132	0.0133	0.0136	4,913	5,001	99%	97%
75-79	8,030	304,698	0.0264	0.0256	0.0257	7,803	7,819	103%	103%
80-84	9,199	175,851	0.0523	0.0488	0.0503	8,582	8,839	107%	104%
85-89	7,743	85,954	0.0901	0.0934	0.0987	8,030	8,486	96%	91%
90-94	6,182	34,424	0.1796	0.1705	0.1808	5,871	6,225	105%	99%
95-99	1,806	6,051	0.2984	0.2762	0.2984	1,671	1,806	108%	100%
Totals	\$ 40,349	\$ 1,348,677	0.0299	0.0291	0.0302	\$ 39,227	\$ 40,752	103%	99%
65-74	\$ 7,019	\$ 642,319	0.0109	0.0107	0.0111	\$ 6,873	\$ 7,127	102%	98%
75-84	\$ 17,230	\$ 480,549	0.0359	0.0341	0.0347	\$ 16,385	\$ 16,658	105%	103%
85-94	\$ 13,925	\$ 120,378	0.1157	0.1155	0.1222	\$ 13,901	\$ 14,711	100%	95%



TEACHERS
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
Weighted by Annual Benefits in \$000s

Age (1)	Actual Death (2)	Total Benefits (3)	Actual Rate (4)	Assumed Rate		Expected Benefits		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 122	\$ 34,841	0.0035	0.0023	0.0023	\$ 87	\$ 84	140%	145%
60-64	1,013	292,068	0.0035	0.0035	0.0032	1,073	982	94%	103%
65-69	4,061	768,261	0.0053	0.0056	0.0051	4,448	4,037	91%	101%
70-74	6,823	749,131	0.0091	0.0102	0.0096	7,680	7,222	89%	94%
75-79	8,450	475,176	0.0178	0.0197	0.0190	9,107	8,771	93%	96%
80-84	8,980	223,393	0.0402	0.0384	0.0392	8,410	8,579	107%	105%
85-89	9,995	122,486	0.0816	0.0745	0.0783	9,021	9,453	111%	106%
90-94	7,797	56,350	0.1384	0.1409	0.1439	7,681	7,849	102%	99%
95-99	3,738	16,427	0.2276	0.2444	0.2425	3,788	3,768	99%	99%
Totals	\$ 50,980	\$ 2,738,134	0.0186	0.0187	0.0185	\$ 51,295	\$ 50,745	99%	100%
65-74	\$ 10,884	\$ 1,517,393	0.0072	0.0080	0.0074	\$ 12,128	\$ 11,259	90%	97%
75-84	\$ 17,431	\$ 698,569	0.0250	0.0251	0.0248	\$ 17,517	\$ 17,350	100%	100%
85-94	\$ 17,792	\$ 178,836	0.0995	0.0934	0.0967	\$ 16,703	\$ 17,302	107%	103%

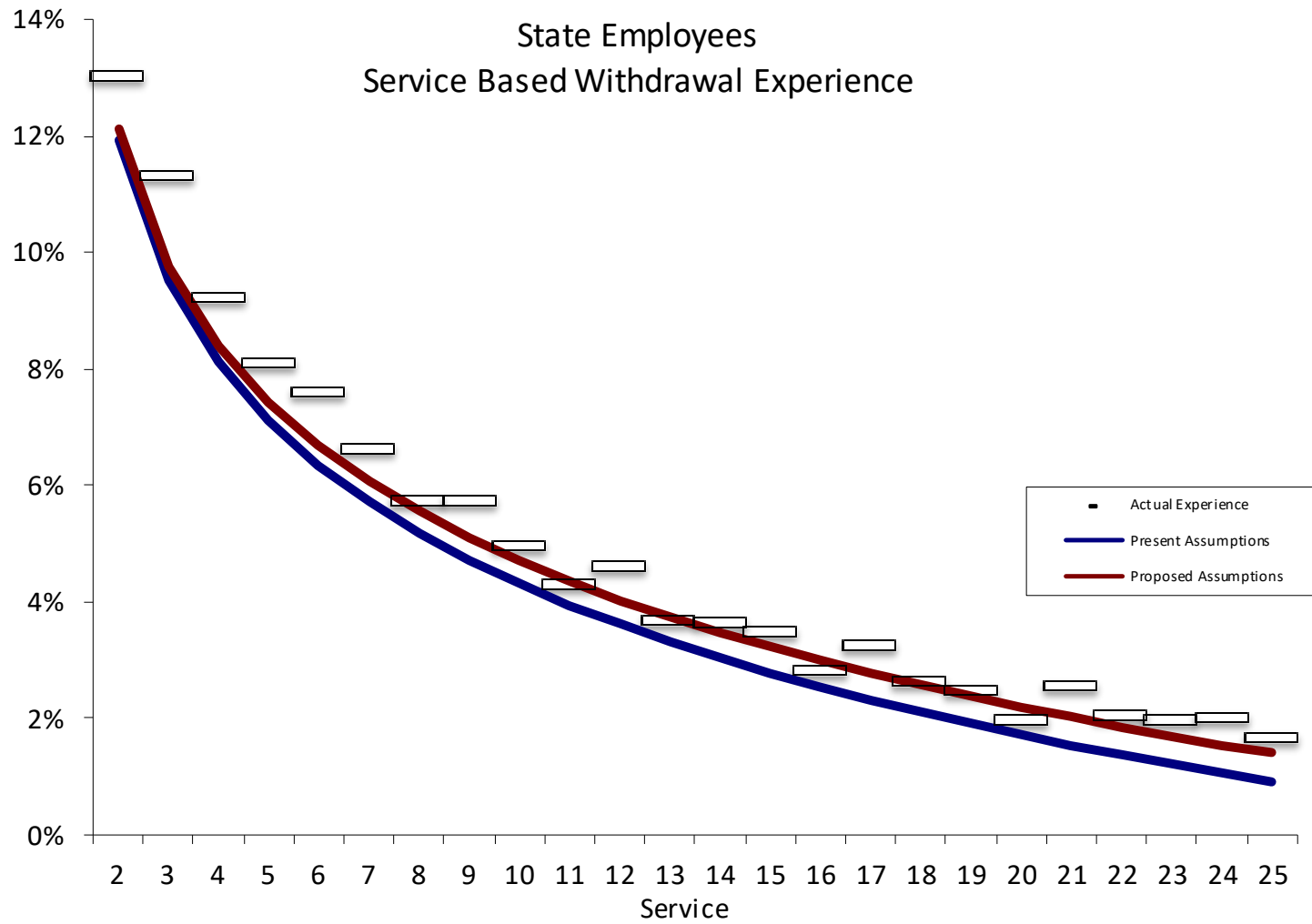


STATE EMPLOYEES
SERVICE BASED WITHDRAWAL EXPERIENCE
Weighted by Liability in \$000s

Service (1)	Actual Withdrawal (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	\$ 18,032	\$ 126,964	0.142023	0.188800	0.129241	\$ 23,971	\$ 16,409	75%	110%
2	37,786	290,050	0.130274	0.119369	0.121030	34,623	35,105	109%	108%
3	32,322	285,040	0.113396	0.095306	0.097692	27,166	27,846	119%	116%
4	25,890	279,970	0.092473	0.081230	0.084039	22,742	23,528	114%	110%
5	22,628	279,510	0.080955	0.071243	0.074353	19,913	20,783	114%	109%
6	22,269	292,545	0.076121	0.063496	0.066840	18,575	19,554	120%	114%
7	18,937	284,942	0.066460	0.057166	0.060702	16,289	17,296	116%	109%
8	15,981	278,477	0.057388	0.051815	0.055511	14,429	15,459	111%	103%
9	15,616	272,880	0.057225	0.047180	0.051016	12,874	13,921	121%	112%
10	14,079	284,852	0.049427	0.043091	0.047050	12,275	13,402	115%	105%
11	13,242	307,879	0.043012	0.039433	0.043502	12,141	13,393	109%	99%
12	14,868	322,963	0.046036	0.036125	0.040293	11,667	13,013	127%	114%
13	11,839	323,125	0.036641	0.033104	0.037363	10,697	12,073	111%	98%
14	12,054	330,780	0.036442	0.030325	0.034668	10,031	11,468	120%	105%
15	12,278	350,350	0.035045	0.027752	0.032173	9,723	11,272	126%	109%
16	10,595	373,031	0.028402	0.025357	0.029850	9,459	11,135	112%	95%
17	12,791	390,836	0.032728	0.023116	0.027677	9,035	10,817	142%	118%
18	11,094	419,932	0.026418	0.021012	0.025636	8,824	10,765	126%	103%
19	10,762	437,574	0.024595	0.019028	0.023711	8,326	10,375	129%	104%
20	8,693	437,015	0.019892	0.017151	0.021891	7,495	9,567	116%	91%
21	10,865	424,688	0.025584	0.015371	0.020164	6,528	8,563	166%	127%
22	8,532	418,807	0.020372	0.013676	0.018521	5,728	7,757	149%	110%
23	8,485	431,462	0.019665	0.012062	0.016954	5,204	7,315	163%	116%
24	9,437	466,385	0.020233	0.010519	0.015458	4,906	7,209	192%	131%
25	7,805	471,911	0.016538	0.009041	0.014025	4,267	6,619	183%	118%
Totals	\$ 386,880	\$ 8,581,965				\$ 326,886	\$ 354,644	118%	109%



State Employees Service Based Withdrawal Experience

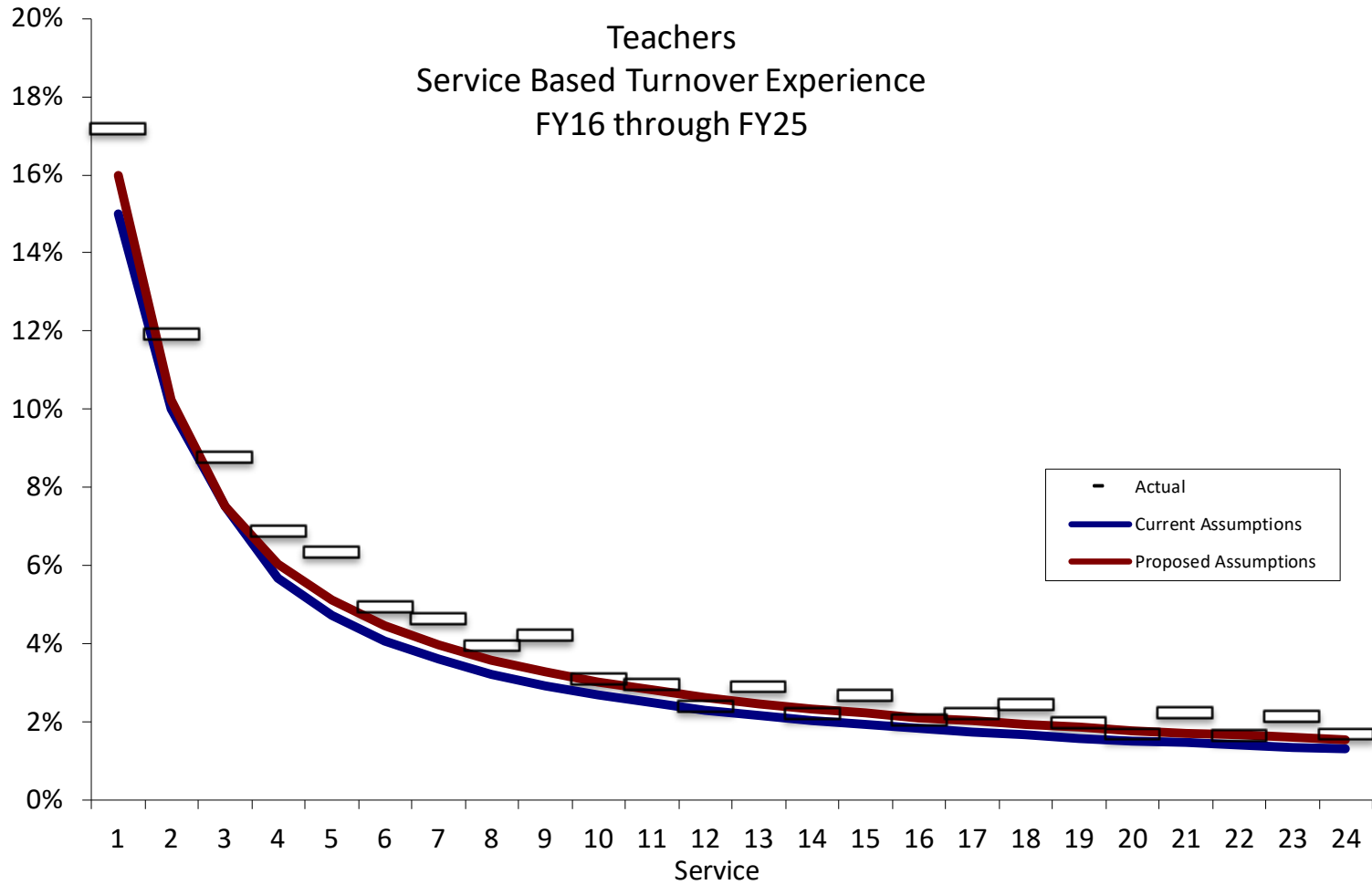


TEACHERS
SERVICE BASED WITHDRAWAL EXPERIENCE
Weighted by Liability in \$000s

Service	Actual Withdrawal	Total Count	Actual Rate	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	\$ 60,251	\$ 350,365	0.171967	0.150000	0.160000	\$ 52,555	\$ 56,058	115%	107%
2	39,140	328,388	0.119188	0.100000	0.102321	32,839	33,601	119%	116%
3	28,220	321,865	0.087677	0.075000	0.075216	24,140	24,210	117%	117%
4	22,377	325,234	0.068803	0.056841	0.060462	18,487	19,664	121%	114%
5	21,811	344,157	0.063376	0.047326	0.051042	16,288	17,567	134%	124%
6	17,698	359,321	0.049253	0.040747	0.044446	14,641	15,970	121%	111%
7	17,447	375,122	0.046511	0.035903	0.039538	13,468	14,832	130%	118%
8	15,474	392,860	0.039389	0.032175	0.035727	12,640	14,036	122%	110%
9	17,338	409,773	0.042311	0.029209	0.032672	11,969	13,388	145%	130%
10	13,793	444,615	0.031023	0.026789	0.030161	11,911	13,410	116%	103%
11	14,059	476,074	0.029531	0.024773	0.028056	11,794	13,357	119%	105%
12	12,999	536,618	0.024224	0.023065	0.026263	12,377	14,093	105%	92%
13	17,795	615,080	0.028931	0.021598	0.024715	13,284	15,202	134%	117%
14	15,423	702,381	0.021958	0.020323	0.023363	14,274	16,410	108%	94%
15	22,066	826,085	0.026711	0.019204	0.022171	15,864	18,316	139%	120%
16	19,410	951,786	0.020393	0.018213	0.021112	17,335	20,094	112%	97%
17	23,052	1,043,292	0.022095	0.017328	0.020162	18,078	21,035	128%	110%
18	27,921	1,146,363	0.024356	0.016534	0.019306	18,954	22,132	147%	126%
19	24,310	1,226,784	0.019816	0.015816	0.018530	19,403	22,732	125%	107%
20	22,010	1,299,684	0.016935	0.015164	0.017822	19,708	23,163	112%	95%
21	29,665	1,329,998	0.022304	0.014568	0.017174	19,375	22,842	153%	130%
22	22,209	1,331,034	0.016685	0.014022	0.016579	18,664	22,067	119%	101%
23	28,231	1,312,280	0.021513	0.013520	0.016029	17,742	21,034	159%	134%
24	21,674	1,276,986	0.016973	0.013056	0.015519	16,672	19,818	130%	109%
Totals	\$ 554,373	\$ 17,726,144				\$ 442,463	\$ 495,030	125%	112%



Teachers
Service Based Turnover Experience
FY16 through FY25

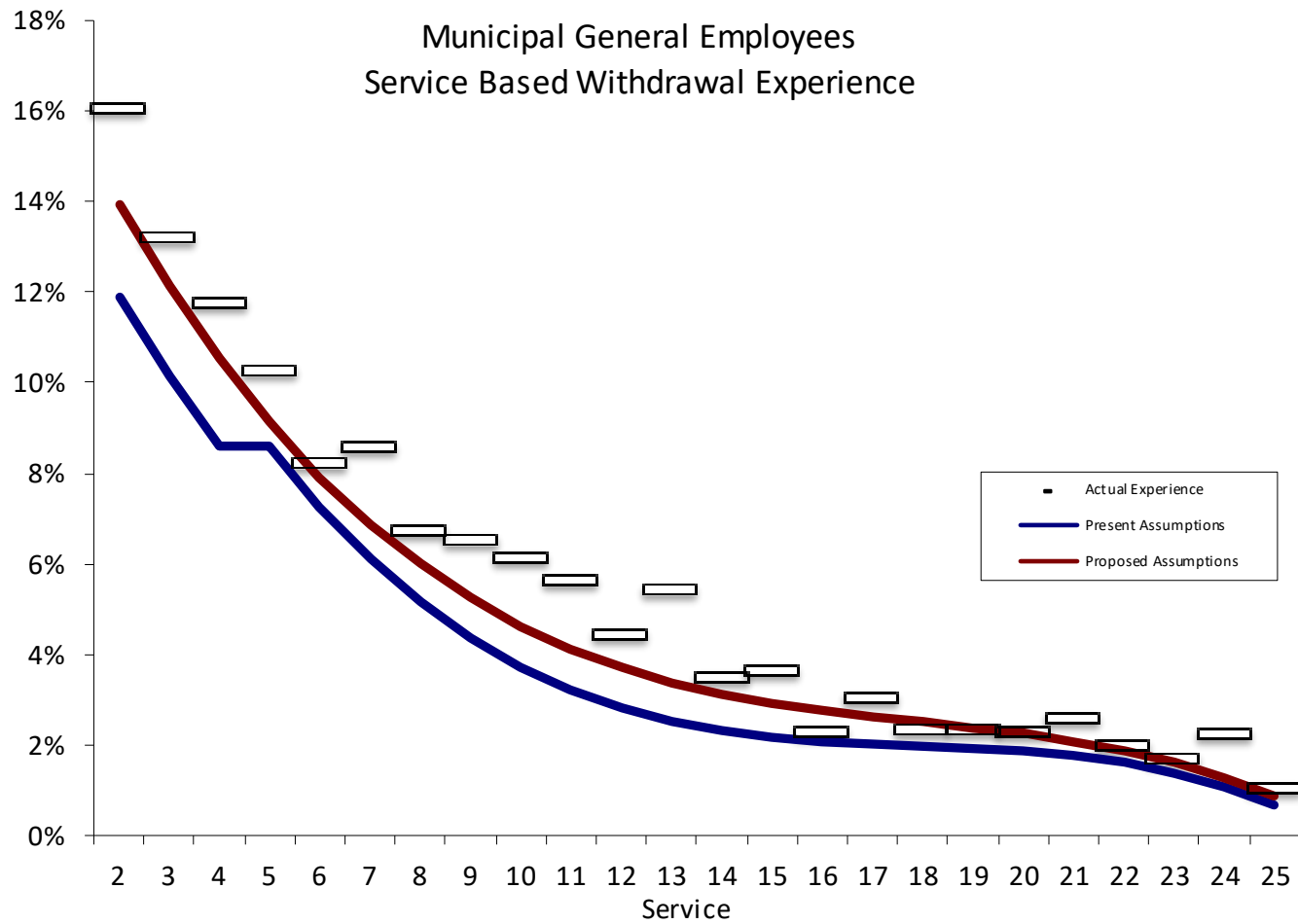


**MERS GENERAL EMPLOYEES
SERVICE BASED WITHDRAWAL EXPERIENCE
Weighted by Liability in \$000s**

Service (1)	Actual Withdrawal (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	\$ 9,899	\$ 48,136	0.205647	0.175000	0.159956	\$ 8,424	\$ 7,700	118%	129%
2	20,072	125,164	0.160366	0.118774	0.139564	14,866	17,468	135%	115%
3	16,274	122,954	0.132355	0.101396	0.121440	12,467	14,932	131%	109%
4	13,423	114,259	0.117479	0.086148	0.105441	9,843	12,048	136%	111%
5	11,113	107,953	0.102945	0.086007	0.091426	9,285	9,870	120%	113%
6	9,090	110,789	0.082049	0.072536	0.079252	8,036	8,780	113%	104%
7	9,450	110,394	0.085601	0.061073	0.068777	6,742	7,593	140%	124%
8	7,370	109,493	0.067309	0.051453	0.059858	5,634	6,554	131%	112%
9	7,200	110,129	0.065375	0.043504	0.052354	4,791	5,766	150%	125%
10	6,856	111,802	0.061321	0.037061	0.046121	4,144	5,156	165%	133%
11	6,614	117,802	0.056145	0.031957	0.041018	3,765	4,832	176%	137%
12	5,579	125,633	0.044407	0.028020	0.036903	3,520	4,636	158%	120%
13	7,616	140,074	0.054371	0.025086	0.033632	3,514	4,711	217%	162%
14	5,399	154,115	0.035035	0.022985	0.031064	3,542	4,787	152%	113%
15	6,450	176,276	0.036589	0.021550	0.029057	3,799	5,122	170%	126%
16	4,633	200,783	0.023074	0.020615	0.027468	4,139	5,515	112%	84%
17	6,767	221,186	0.030595	0.020008	0.026155	4,426	5,785	153%	117%
18	5,622	239,347	0.023491	0.019563	0.024976	4,682	5,978	120%	94%
19	5,728	245,096	0.023372	0.019114	0.023788	4,685	5,830	122%	98%
20	5,880	256,157	0.022954	0.018489	0.022448	4,736	5,750	124%	102%
21	6,585	256,506	0.025670	0.017524	0.020816	4,495	5,339	146%	123%
22	4,756	241,975	0.019654	0.016050	0.018748	3,884	4,537	122%	105%
23	3,958	237,218	0.016685	0.013898	0.016103	3,297	3,820	120%	104%
24	4,934	221,512	0.022276	0.010902	0.012737	2,415	2,821	204%	175%
25	2,222	216,173	0.010278	0.006892	0.008508	1,490	1,839	149%	121%
Totals	\$ 193,490	\$ 4,120,926				\$ 140,620	\$ 167,169	138%	116%



Municipal General Employees Service Based Withdrawal Experience

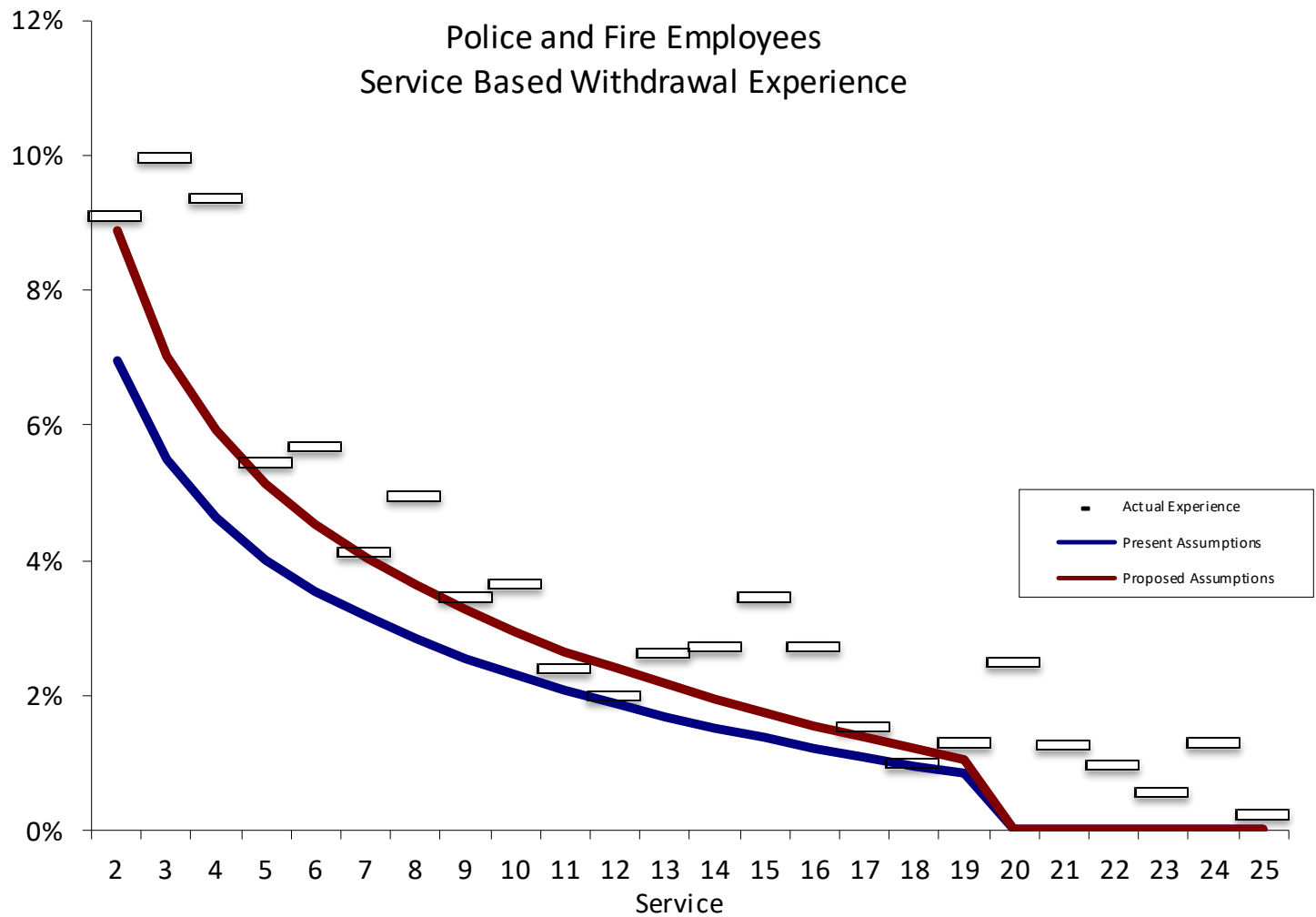


**POLICE AND FIRE
SERVICE BASED WITHDRAWAL EXPERIENCE
Weighted by Liability in \$000s**

Service (1)	Actual Withdrawal (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	\$ 12,720	\$ 95,465	0.133244	0.125000	0.100000	\$ 11,933	\$ 9,546	107%	133%
2	20,024	205,335	0.091132	0.069563	0.089040	14,284	18,283	140%	110%
3	18,410	188,235	0.099718	0.054863	0.070224	10,327	13,219	178%	139%
4	17,907	193,513	0.093794	0.046265	0.059219	8,953	11,460	200%	156%
5	10,270	190,992	0.054589	0.040164	0.051410	7,671	9,819	134%	105%
6	10,706	187,162	0.056930	0.035433	0.045354	6,632	8,489	161%	126%
7	7,643	185,767	0.041053	0.031566	0.040405	5,864	7,506	130%	102%
8	8,443	180,031	0.049472	0.028296	0.036219	5,094	6,521	166%	129%
9	6,161	173,356	0.034498	0.025465	0.032595	4,415	5,651	140%	109%
10	7,643	183,420	0.036622	0.022968	0.029398	4,213	5,392	181%	142%
11	5,273	196,240	0.023815	0.020733	0.026538	4,069	5,208	130%	101%
12	4,279	205,333	0.019845	0.018711	0.023950	3,842	4,918	111%	87%
13	5,344	211,741	0.026123	0.016866	0.021589	3,571	4,571	150%	117%
14	6,091	223,018	0.027081	0.015169	0.019416	3,383	4,330	180%	141%
15	8,425	236,247	0.034390	0.013598	0.017405	3,212	4,112	262%	205%
16	6,310	234,089	0.027239	0.012135	0.015533	2,841	3,636	222%	174%
17	3,601	245,956	0.015324	0.010766	0.013781	2,648	3,390	136%	106%
18	2,669	258,577	0.009781	0.009480	0.012134	2,451	3,138	109%	85%
19	3,332	270,825	0.012953	0.008269	0.010584	2,239	2,866	149%	116%
20	6,557	260,782	0.025060	0.000000	0.000000	0	0	0%	0%
21	3,240	265,248	0.012643	0.000000	0.000000	0	0	0%	0%
22	2,848	266,051	0.009480	0.000000	0.000000	0	0	0%	0%
23	1,349	252,150	0.005571	0.000000	0.000000	0	0	0%	0%
24	2,955	234,530	0.013056	0.000000	0.000000	0	0	0%	0%
25	489	234,669	0.002166	0.000000	0.000000	0	0	0%	0%
Totals	\$ 182,689	\$ 5,378,732				\$ 107,642	\$ 132,055	170%	138%



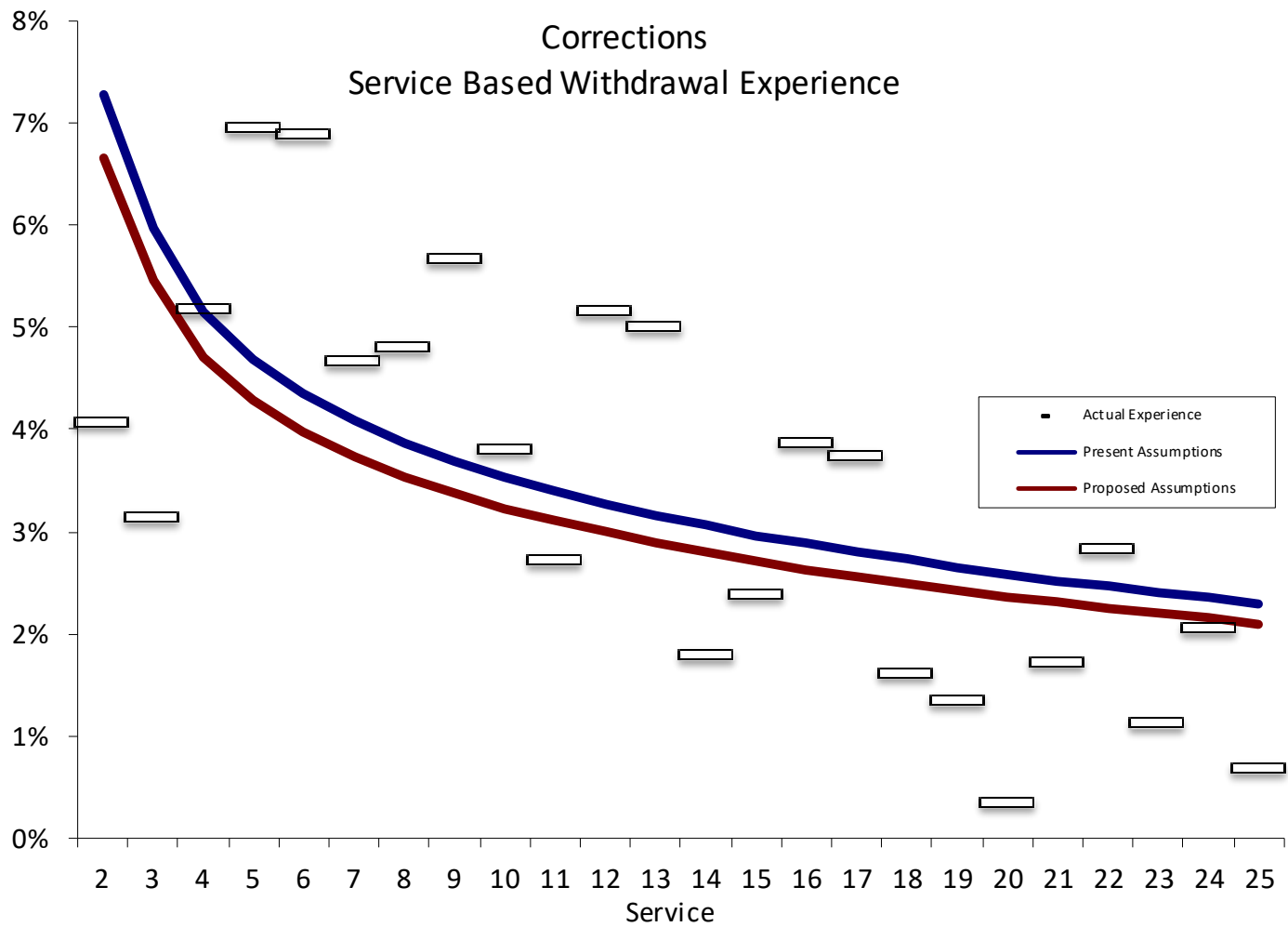
Police and Fire Employees Service Based Withdrawal Experience



Correctional Officers
SERVICE BASED WITHDRAWAL EXPERIENCE
Weighted by Liability in \$millions

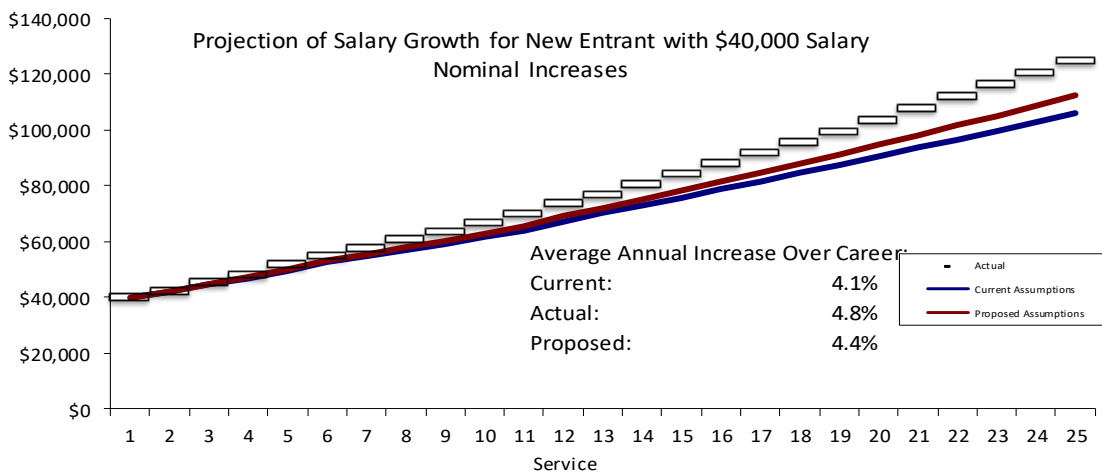
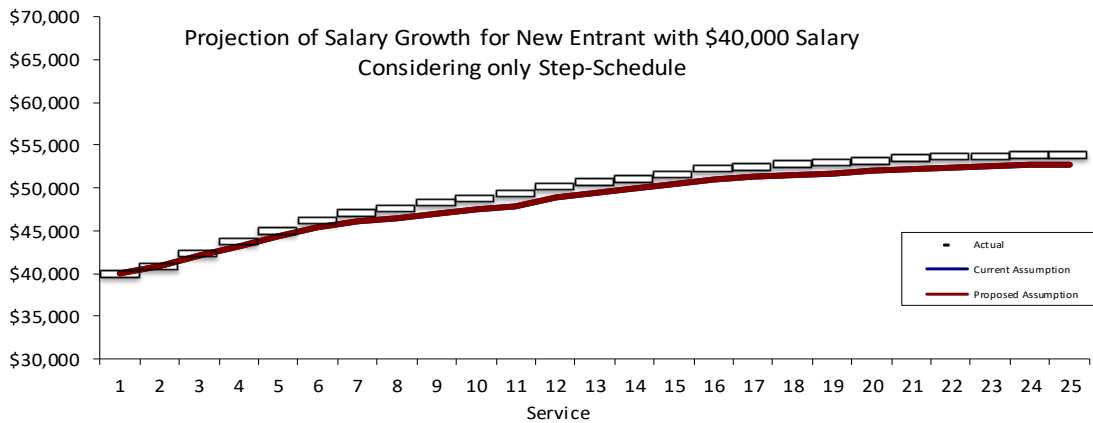
Service (1)	Actual Withdrawal (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	\$ 1,403	\$ 11,384	0.123257	0.100000	0.104000	\$ 1,138	\$ 1,184	123%	119%
2	953	26,841	0.035496	0.070000	0.072800	1,879	1,954	51%	49%
3	948	27,743	0.034169	0.057393	0.059689	1,592	1,656	60%	57%
4	1,322	32,348	0.040883	0.049595	0.051579	1,604	1,668	82%	79%
5	2,407	28,305	0.085043	0.045034	0.046835	1,275	1,326	189%	182%
6	990	30,713	0.032245	0.041797	0.043469	1,284	1,335	77%	74%
7	1,625	36,934	0.044005	0.039287	0.040858	1,451	1,509	112%	108%
8	1,670	42,990	0.038854	0.037236	0.038725	1,601	1,665	104%	100%
9	2,076	45,820	0.045299	0.035502	0.036922	1,627	1,692	128%	123%
10	1,093	45,562	0.023984	0.033999	0.035359	1,549	1,611	71%	68%
11	1,606	49,937	0.032151	0.032674	0.033981	1,632	1,697	98%	95%
12	2,436	51,135	0.047643	0.031489	0.032749	1,610	1,675	151%	145%
13	3,367	61,195	0.055024	0.030417	0.031634	1,861	1,936	181%	174%
14	2,130	61,774	0.034482	0.029438	0.030616	1,818	1,891	117%	113%
15	1,899	65,376	0.029049	0.028537	0.029678	1,866	1,940	102%	98%
16	3,109	67,772	0.045872	0.027704	0.028812	1,878	1,953	166%	159%
17	2,814	67,880	0.041452	0.026927	0.028004	1,828	1,901	154%	148%
18	1,722	59,485	0.028949	0.026201	0.027249	1,559	1,621	110%	106%
19	1,042	61,073	0.017060	0.025519	0.026540	1,559	1,621	67%	64%
20	850	65,826	0.012916	0.024876	0.025871	1,637	1,703	52%	50%
21	2,236	71,619	0.031218	0.024268	0.025239	1,738	1,808	129%	124%
22	2,869	90,891	0.031564	0.023691	0.024639	2,153	2,239	133%	128%
23	3,339	109,643	0.030457	0.023142	0.024068	2,537	2,639	132%	127%
24	2,437	115,100	0.021176	0.022619	0.023524	2,603	2,708	94%	90%
25	1,071	117,434	0.009116	0.022119	0.023004	2,598	2,701	41%	40%
Totals	\$ 47,415	\$ 1,444,777				\$ 43,877	\$ 45,632	108%	104%





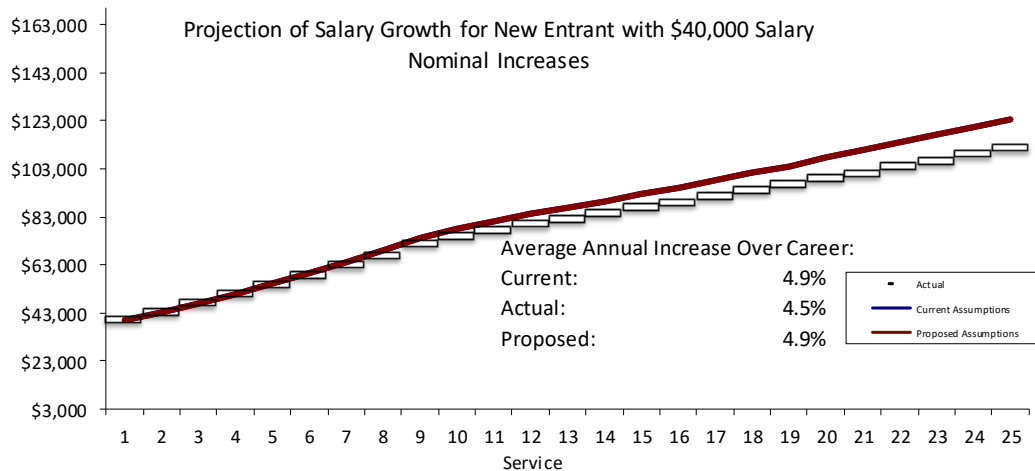
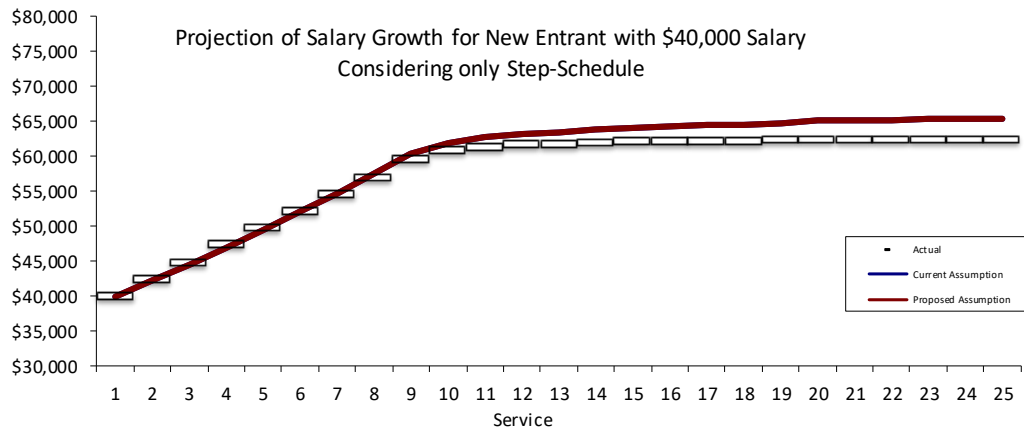
**Salary Scale Assumption
State Employees**

Year	Average Long		
	Service Increase	CPI	Productivity
2006	7.16%	4.15%	3.01%
2007	5.11%	2.36%	2.75%
2008	3.74%	5.60%	-1.86%
2009	1.46%	-2.10%	3.55%
2010	4.49%	1.24%	3.26%
2011	1.94%	3.63%	-1.69%
2012	4.79%	1.41%	3.38%
2013	0.84%	1.96%	-1.12%
2014	0.76%	1.99%	-1.23%
2015	3.75%	0.17%	3.58%
Average	3.86%	3.07%	0.79%
Proposed	3.25%	2.50%	0.75%



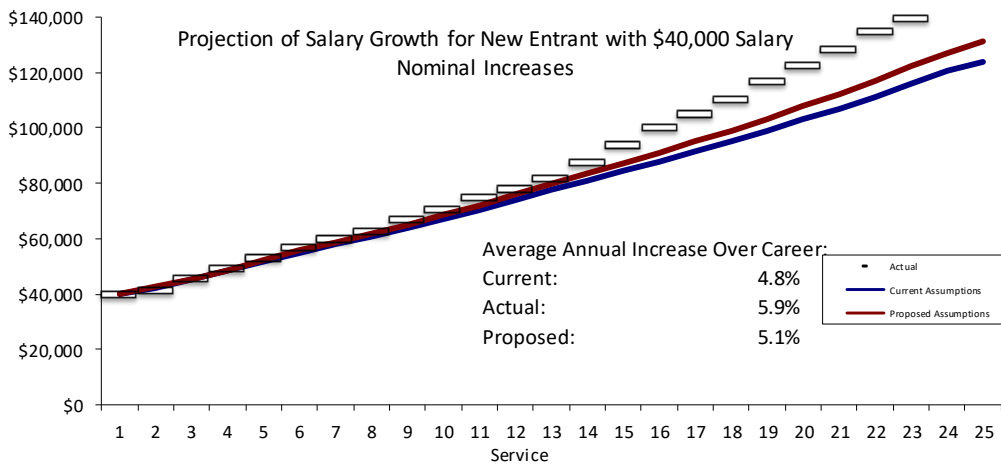
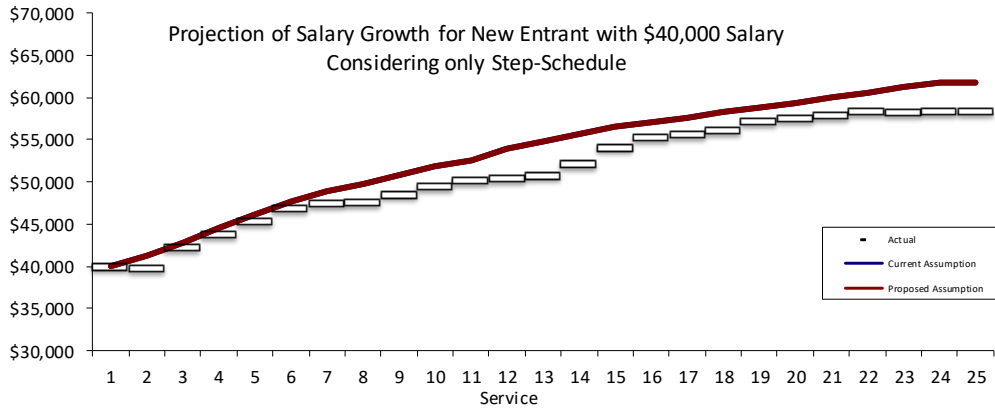
**Salary Scale Assumption
Teachers**

Year	Average Long		
	Service Increase	CPI	Productivity
2006	3.80%	4.15%	-0.34%
2007	5.23%	2.36%	2.88%
2008	3.86%	5.60%	-1.74%
2009	3.37%	-2.10%	5.47%
2010	1.98%	1.24%	0.74%
2011	3.66%	3.63%	0.03%
2012	1.41%	1.41%	0.00%
2013	-2.46%	1.96%	-4.42%
2014	1.33%	1.99%	-0.66%
2015	1.59%	0.17%	1.42%
Average	0.00%	3.07%	-3.07%
Proposed	2.75%	2.50%	0.25%



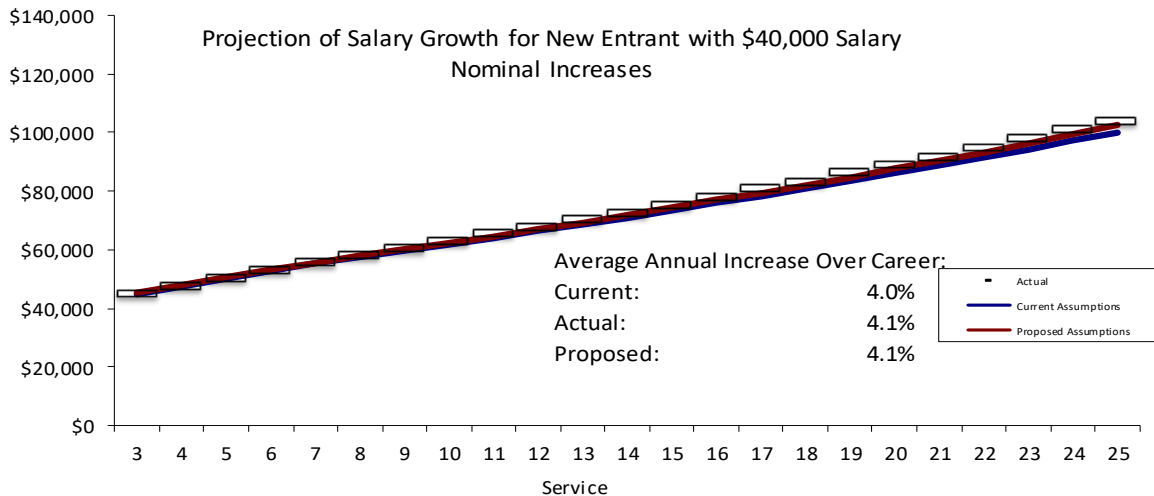
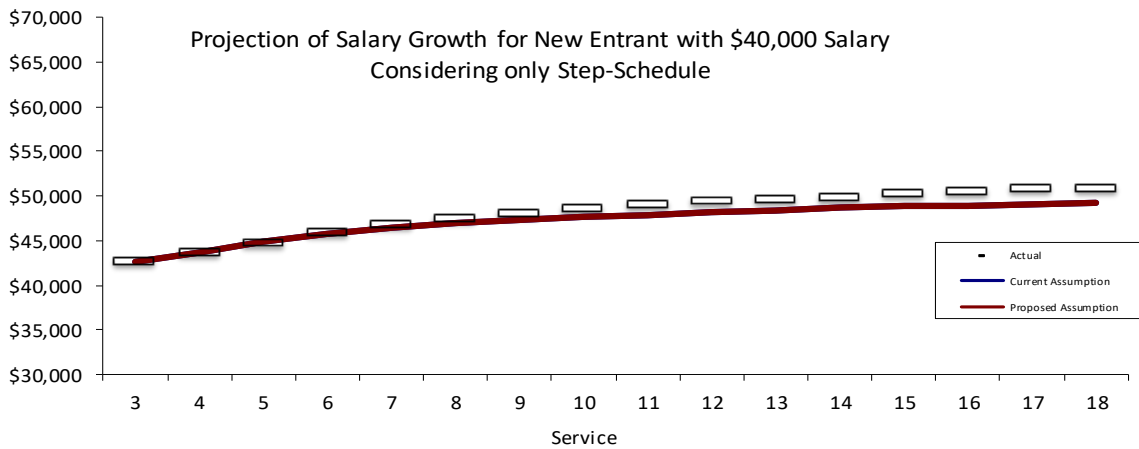
**Salary Scale Assumption
Corrections**

Year	Average Long		
	Service Increase	CPI	Productivity
2016	0.50%	0.83%	-0.33%
2017	9.17%	1.73%	7.44%
2018	2.62%	2.95%	-0.33%
2019	4.03%	1.81%	2.22%
2020	4.35%	0.99%	3.37%
2021	1.06%	5.37%	-4.31%
2022	1.12%	8.52%	-7.40%
2023	8.57%	3.18%	5.40%
2024	5.89%	2.89%	2.99%
2025	4.43%	2.70%	1.72%
Average	4.14%	3.07%	1.06%
Proposed	3.25%	2.50%	0.75%



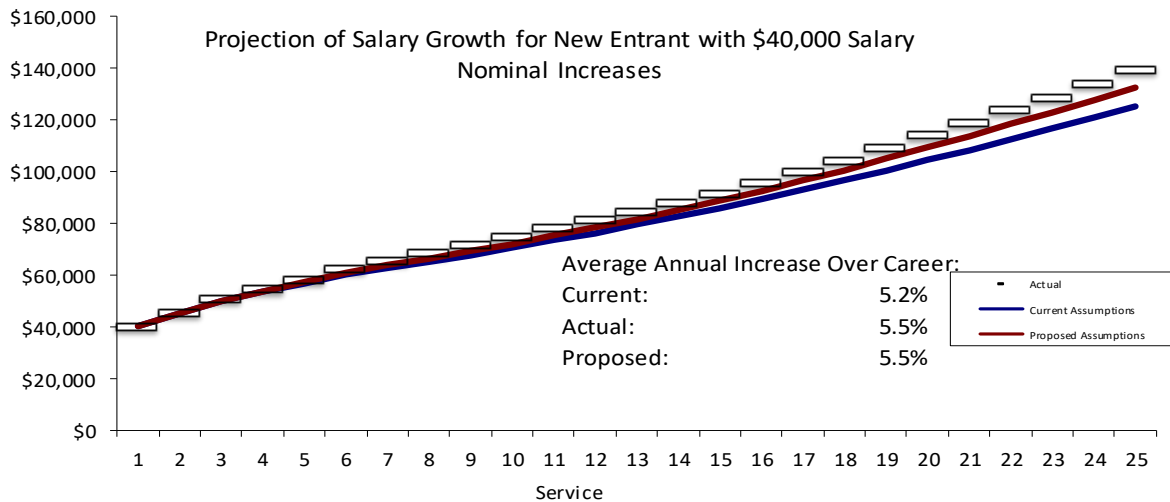
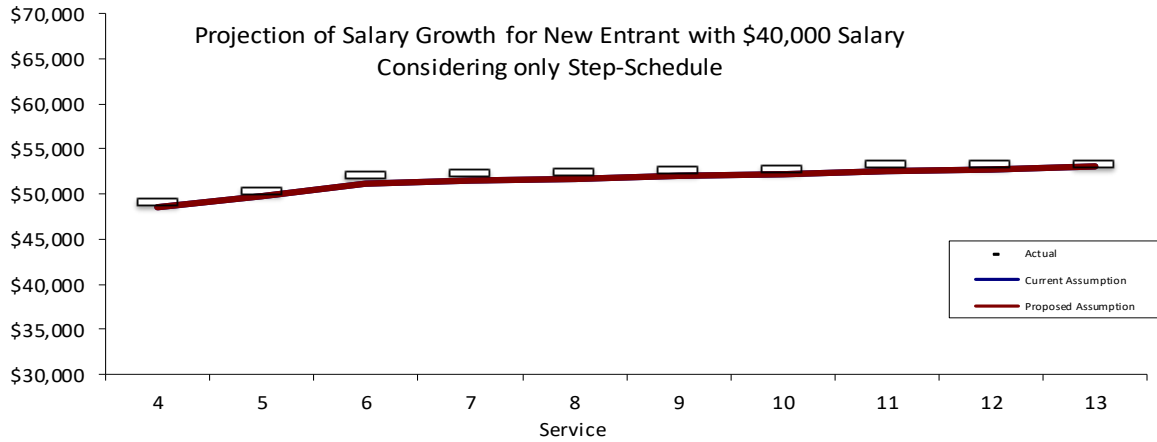
**Salary Scale Assumption
MERS General**

Year	Average Long Service Increase	CPI	Productivity
2008	3.43%	5.60%	-2.17%
2009	3.34%	-2.10%	5.44%
2010	0.94%	1.24%	-0.30%
2011	1.64%	3.63%	-1.99%
2012	1.95%	1.41%	0.54%
2013	2.31%	1.96%	0.35%
2014	1.65%	1.99%	-0.34%
2015	2.45%	0.17%	2.28%
2016	2.13%	0.83%	1.30%
2017	3.86%	1.73%	2.14%
Average	2.99%	0.00%	2.99%
Proposed	3.10%	2.50%	0.60%



**Salary Scale Assumption
MERS Police and Fire**

Year	Average Long		
	Service Increase	CPI	Productivity
2009	0.99%	-2.10%	3.09%
2010	5.05%	1.24%	3.81%
2011	3.02%	3.63%	-0.61%
2012	2.09%	1.41%	0.68%
2013	3.99%	1.96%	2.03%
2014	1.81%	1.99%	-0.19%
2015	2.59%	0.17%	2.42%
2016	4.59%	0.83%	3.76%
2017	3.87%	1.73%	2.14%
2018	3.31%	2.95%	0.36%
Average	3.13%	0.00%	3.13%
Proposed	3.75%	2.50%	1.25%



**CORRECTIONAL OFFICERS
RETIREMENT EXPERIENCE - SERVICE BASED
Weighted by Liability in \$100,000s**

Service Year	Actual Retirement	Total Count	Actual Rate	Assumed Rate		Expected Retirement		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
25	21	134	0.157	0.097	0.120	13	16	161%	131%
26	14	163	0.083	0.049	0.070	8	11	169%	123%
27	14	191	0.073	0.057	0.080	11	15	128%	94%
28	39	288	0.135	0.070	0.090	20	26	194%	149%
29	44	536	0.082	0.080	0.100	43	54	102%	81%
30	72	722	0.100	0.090	0.110	65	79	111%	92%
31	91	926	0.098	0.100	0.120	93	111	98%	82%
32	131	1,080	0.121	0.110	0.130	119	140	110%	93%
33	80	1,188	0.068	0.120	0.140	143	166	56%	48%
34	179	992	0.180	0.130	0.150	129	149	139%	120%
35	105	608	0.172	0.140	0.160	85	97	123%	108%
36	69	372	0.186	0.151	0.170	56	63	124%	110%
37	24	267	0.090	0.161	0.180	43	48	56%	50%
38	24	209	0.117	0.172	0.190	36	40	68%	61%
39	84	189	0.443	0.180	0.200	34	38	247%	221%
Total	991	7,866				898	1,053	110%	94%



TEACHERS
RETIREMENT EXPERIENCE AFTER FIRST ELIGIBILITY - AGE BASED
Weighted by Liability in \$100,000s

Age (1)	Actual Retirement (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Retirement		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
Under 60	33	124	0.271	0.200	0.300	25	37	135%	90%
60	539	1,969	0.274	0.200	0.300	394	591	137%	91%
61	439	1,841	0.238	0.200	0.300	368	552	119%	79%
62	474	1,678	0.283	0.200	0.300	336	503	141%	94%
63	467	1,915	0.244	0.200	0.300	383	574	122%	81%
64	437	1,835	0.238	0.200	0.300	367	550	119%	79%
65	589	1,720	0.342	0.350	0.300	516	516	114%	114%
66	875	2,204	0.397	0.350	0.300	661	661	132%	132%
67	501	1,656	0.302	0.350	0.300	497	497	101%	101%
68	430	1,183	0.364	0.350	0.300	355	355	121%	121%
69	245	776	0.316	0.350	0.300	233	233	105%	105%
70	204	565	0.360	0.350	0.350	198	198	103%	103%
71	96	383	0.250	0.350	0.350	134	134	71%	71%
72	78	280	0.278	0.350	0.350	98	98	80%	80%
73	71	215	0.330	0.350	0.350	75	75	94%	94%
74	60	142	0.422	0.350	0.350	50	50	121%	121%
Total	5,538	18,484	0.300			4,688	5,624	118%	98%



POLICE AND FIRE OFFICERS
RETIREMENT EXPERIENCE - SERVICE BASED
For members who reach 20 years of service
Weighted by Liability in \$100,000s

Service Year (1)	Actual Retirement (2)	Total Count (3)	Actual Rate (4)	Assumed Rate		Expected Retirement		Actual/Expected	
				Current (5)	Proposed (6)	Current (7)	Proposed (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
25	140	776	0.180	0.150	0.170	116	132	120%	106%
26	114	671	0.170	0.150	0.170	101	114	114%	100%
27	135	595	0.226	0.180	0.200	107	119	126%	113%
28	106	462	0.229	0.210	0.230	97	106	109%	99%
29	88	342	0.258	0.220	0.240	75	82	117%	108%
30	43	268	0.160	0.220	0.240	59	64	73%	67%
31	79	172	0.462	0.270	0.290	46	50	171%	159%
32	50	130	0.385	0.270	0.290	35	38	143%	133%
33	-	57	0.000	0.270	0.290	15	17	0%	0%
34	17	42	0.403	0.270	0.290	11	12	149%	139%
35	-	26	0.000	0.370	0.390	10	10	0%	0%
36	-	-	0.000	0.370	0.390	-	-	0%	0%
37	-	14	0.000	0.370	0.390	5	5	0%	0%
38	-	12	0.000	0.370	0.390	4	5	0%	0%
39	6	12	0.520	0.370	0.390	4	5	140%	133%
40 and more	15	28	0.513	1.000	1.000	28	28	51%	51%
Total	792	3,607				715	787	111%	101%



STATE POLICE
RETIREMENT EXPERIENCE - SERVICE BASED
Weighted by Liability in \$100,000s

Service Year	Actual Retirement	Total Count	Actual Rate	Assumed Rate		Expected Retirement		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20	-	-	N/A	0.050	0.050	-	-	N/A	N/A
21	-	40	0.000	0.080	0.050	3	2	0%	0%
22	2	60	0.033	0.110	0.050	7	3	29%	67%
23	6	74	0.081	0.140	0.080	10	6	60%	100%
24	5	81	0.062	0.170	0.080	14	6	36%	83%
25	21	79	0.266	0.450	0.350	36	28	58%	75%
26	12	56	0.214	0.450	0.350	25	20	48%	60%
27	9	39	0.231	0.450	0.350	18	14	50%	64%
28	13	20	0.650	0.450	0.350	9	7	144%	186%
29	5	5	1.000	0.450	0.350	2	2	250%	250%
30	-	-	N/A	0.450	0.450	-	-	N/A	N/A
31	-	-	N/A	0.450	0.450	-	-	N/A	N/A
32	-	-	N/A	0.450	0.450	-	-	N/A	N/A
33	-	-	N/A	0.450	0.450	-	-	N/A	N/A
34	-	-	N/A	0.450	0.450	-	-	N/A	N/A
35	-	-	N/A	0.450	0.450	-	-	N/A	N/A
36	-	-	N/A	0.450	0.450	-	-	N/A	N/A
37	-	-	N/A	0.450	0.450	-	-	N/A	N/A
38	-	-	N/A	0.450	0.450	-	-	N/A	N/A
39	-	-	N/A	0.450	0.450	-	-	N/A	N/A
Other	-	-	N/A	0.000	0.000	-	-	N/A	N/A
Total	73	454	0.161			124	88	59%	83%

