South Carolina Public Employee Benefit Authority
South Carolina Retirement Systems

2024 Actuarial Experience Study
for the Period Ending June 30, 2023

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June 26, 2024

Public Employee Benefit Authority
South Carolina Retirement Systems
P.O. Box 11960
Columbia, SC 26211-1960

Dear Members of the Board:

Subject: Results of 2024 Experience Study

We are pleased to present our report of the 2024 Experience Investigation Study for the South Carolina Retirement Systems (i.e. South Carolina Retirement System, Police Officers Retirement System, Judges and Solicitors Retirement System, General Assembly Retirement System, and the South Carolina National Guard Supplemental Retirement Plan). Our report includes a discussion of the recent experience of the System, it presents our recommendations for updated actuarial assumptions and methods, and it provides information about the actuarial impact of these recommendations on the liabilities, contribution requirements, and the projected funding period.

The employer contribution rates for SCRS and PORS in effect as a result of the enactment of the 2017 pension reform legislation are projected to remain sufficient under both the current and recommended assumptions. The use of the recommended set of actuarial assumptions should present a more accurate portrayal of the Systems' financial condition and projected funding period. The recommended assumptions should also reduce the magnitude of future experience gains and losses.

In performing this study, we reviewed the System's actual demographic experience using a five-year period ending June 30, 2023 (a couple assumptions were based on additional years of experience). The investment return assumption is established in Statute and the current 7.00% investment return assumption will not expire until July 1, 2025. For completeness in our analysis, we have included a preliminary review of the investment return assumption based on 2024 forward-looking return expectations. A final recommendation will be provided in November for PEBA to provide a recommendation to the Chairman of the Senate Finance Committee and the Chairman of the House Ways and Means Committee by December 31, 2024.

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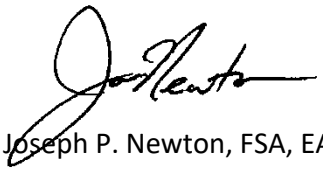
This experience investigation study was conducted in accordance with generally accepted actuarial principles and practices, and in full compliance with the Actuarial Standards of Practice as issued by the Actuarial Standards Board. All of the undersigned are members of and meet the Qualification Standards of the American Academy of Actuaries.

We wish to thank the PEBA staff for their assistance in this project.

Sincerely,



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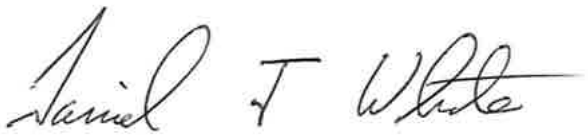

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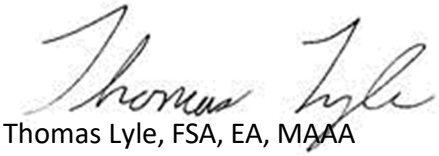

Thomas Lyle, FSA, EA, MAAA
Consultant

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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 South Carolina Retirement Systems. 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 of the retirement changes, 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.

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. With the exception of the investment return assumption, the Board will adopt a new set of demographic and economic assumptions that will be used in the July 1, 2024 actuarial valuation. The investment return assumption is a prescribed assumption set by another party in Section 9-16-335 of South Carolina State Code. The current 7.00% return assumption expires on July 1, 2025 and the Board is to submit a proposed return assumption to the Senate Finance Committee and the House Ways and Means Committee before January 1, 2025 for the General Assembly to consider when amending the Statute.

SECTION I

INTRODUCTION

Introduction

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

- Investment return rate
- Salary increase rates
- Payroll growth
- Inflation rate
- Mortality rates
- Retirement rates
- Termination rates
- Disability rates

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

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 termination 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, 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. Using a longer period prevents giving too much weight to such short-term effects. On the other hand, using a much longer period increases the difficulty of identifying changes in behavior that may be occurring, such as mortality improvement or a change in the ages at which members retire. In our view, using a five-year period ending June 30, 2023 is generally reasonable. However, for certain assumptions, the experience over a ten-year period will be used.

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 “expected” is determined by multiplying the probability of the occurrence at the given age, by the “exposures” at that same age. For example, let’s assume there is a rate of retirement for general employees in SCRS of 10% for members who have 30 years of service. The number of exposures can only be those members who have 30 years of service and are 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 a new assumption 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.

Finally, if the data leads the actuary to conclude that new tables are needed, the actuary "graduates" or smooths the results since the raw results can be quite uneven from age to age or from service year to service year.

Please bear in mind that, while the recommended assumption set represents our best estimate, there are other reasonable assumption sets that could be supported. Some reasonable assumption sets would show higher or lower liabilities or costs.

Organization of Report

Section II of this report summarizes our recommended changes. Section III contains our findings and a more detailed analysis of our recommendation for each actuarial assumption. The impact of adopting our recommendations on liabilities and contribution rates is shown in Section IV. Sections V through IX show a summary of the recommended assumptions for each System. Finally, Section X presents detailed summaries of the data and comparisons of the A/E ratios.

Plans

This study pertains to the following plans:

- South Carolina Retirement System (SCRS)
- Police Officers Retirement System (PORS)
- Judges and Solicitors Retirement System (JSRS)
- General Assembly Retirement System (GARS)
- South Carolina National Guard Supplemental Retirement Plan (SCNG)

Throughout the report, we will refer to each individual plan by SCRS, PORS, JSRS, GARS, and SCNG. We will use the term “System” to refer to all of the plans.

Section X Exhibits

The exhibits in Section X should generally be self-explanatory. For example, on page 122, we show the exhibit analyzing the police service-based termination rates. The second column shows the total number of members who terminated during the study period. This excludes members who died, became disabled or retired. Column (3) shows the total exposures. This is the number of members who could have terminated during any of the years. In this exhibit, the exposures exclude anyone eligible for retirement. A member is counted in each year they could have terminated, so the total shown is the total exposures for the study period. 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 II

SUMMARY OF RECOMMENDATIONS

Summary of Recommendations SCRS and PORS

Our recommendations to the actuarial assumptions used the actuarial valuation for SCRS and PORS may be summarized as follows:

Economic Assumptions

1. Inflation Assumption: Recommend no change to the 2.25% price inflation assumption. This assumption is not directly used in the projection of future benefits or the calculation of the actuarial accrued liability, but is an underlying theoretical component in the other economic assumptions used in the actuarial valuation.

2. Investment Return Assumption: The current assumption is 7.00% and is prescribed assumption under Section 9-16-335 of the South Carolina State Code. Based on the 2024 capital market assumptions from several investment consultants, which include the Investment Commission's investment consultant, Versus, the median expected geometric returns over a 10-year and 20-year time horizon is approximately 7.0% and 7.5%, respectively. The analysis supports the continued use of a 7.00% as a reasonable assumption for use in the actuarial valuation.

3. Payroll growth rate: Recommend maintaining the payroll growth rate from 2.70%.

Demographic Assumptions:

4. Salary Increases for Individual Members: Recommend no change to the long-service component of the salary increase assumption for members with 20 or more years of service. We recommend an across the board increase or upward shift in the salary increase assumption for members with less than 20 years of service. Specifically, we are recommending at 0.15% increase in the salary assumption for State and local government members, a 0.25% increase in the salary assumption for public school employees, and a 0.50% increase in the salary assumption for members in PORS. Note, while we increased the salary assumption it is still possible for the actual salary increases in the next few years to continue to exceed the assumption.

5. Mortality: Actual retiree mortality experience for non-disabled and disabled retirees continues to closely mirror the current mortality assumption and we do not recommend any changes to the non-disabled retiree mortality and disabled retiree mortality assumption. The mortality assumption for active members is the least significant of all the mortality assumptions. We are recommending an update to the mortality assumption to be the variation of the Pub-2010 Below-Median Income tables for general employees, public school employees, and public safety members, respectively, with slight adjustments. We also recommend using a more recent mortality improvement scale and applying this assumption to all of the mortality assumption tables (i.e. non-disabled, disabled, and active mortality).

6. Retirement: Recommend slight modifications to the retirement rates for general employees and more material increases in the retirement rates for public school employees in SCRS. We recommend a slight decrease in the retirement rates at certain ages for members in PORS.

7. Termination/Withdrawal: We recommend some increases in the rates of termination for general employees and female public school employees in SCRS. We also recommend a slight increase in the rates of turnover for members in PORS with more than five years of service.

8. Disability Incidence: Recommend decreasing the rates of disability for public school employees and general and state employees in SCRS as well as members in PORS.

Actuarial Methods and Policies

9. Asset Valuation Method: No change to the current asset valuation method.

10. Actuarial Cost Method: No recommended changes. The individual Entry Age Normal cost method (EAN) used to determine the actuarial accrued liability is by far the most commonly used actuarial cost method for large public retirement systems and is the most appropriate funding method.

11. Funding Policy: The 2017 pension reform legislation significantly increased the sustainability of SCRS and PORS. Similarly, the Board's funding policy adopted in 2019 for JSRS and the increased payroll-based contributions and annual appropriations are expected to increase the sustainability of that System. As the existing funding period continues to decrease for GARS, we recommend the Board adopt a "layered amortization policy" where actuarial gains and losses recognized each future year are separately amortized over a closed 5-year period.

Summary of Recommendations SCRS and PORS

The following table summarizes our recommendations discussed on the previous pages.

Assumption (1)	Retirement System SCRS (2)	Retirement System PORS (3)
Economic Assumptions		
1. Inflation	2.25%	2.25%
2. Investment Return	7.00%	7.00%
3. Payroll Growth Rate	2.70%	2.70%
Demographic Assumptions		
4. Salary Increases	Increase the rate of salary increases for members with less than 20 years of service	Increase the rate of salary increases for members with less than 20 years of service
5. Mortality	No change to the Non-Disabled and Disabled Retiree Mortality Assumption	No change to the Non-Disabled and Disabled Retiree Mortality Assumption
6. Termination/Withdrawal	Slight Increase	Slight Increase
7. Retirement	Increased retirements for public school employees	Slight Decreased in Retirements
8. Disability	Decrease	No change
Other Methods and Policies		
9. Liability Cost Method	EAN	EAN
10. Asset Method	No change	No change
11. Funding Policy	Established in statute	Established in statute

Summary of Recommendations JSRS, GARS, and the SCNG

Our recommendations to the actuarial assumptions used in the actuarial valuation for JSRS, GARS, and SCNG may be summarized as follows:

Assumption (1)	Retirement System JSRS (2)	GARS (3)	SCNG (4)
Economic Assumptions			
1. Inflation	2.25%	2.25%	2.25%
2. Investment Return	7.00%	7.00%	7.00%
3. Payroll Growth Rate	3.00%	N/A	N/A
Demographic Assumptions			
4. Salary Increases	3.00%	N/A	N/A
5. Mortality	Same as public school employees	Same as general employees	Same as PORS
6. Termination/Withdrawal	None	None	No Change
7. Retirement	No Change	No change	No Change
8. Disability	Same as public school employees	Same as general employees	None
Other Methods and Policies			
9. Liability Cost Method	EAN	EAN	EAN
10. Asset Method	No Change	No change	No Change
11. Funding Policy	No Change	5-Year layered amortization bases	No Change

SECTION III

ANALYSIS OF EXPERIENCE AND RECOMMENDATIONS

Analysis of Experience and Recommendations

We will begin by discussing the economic assumptions: inflation, expenses, the investment return rate, the salary increase assumption, and the rate of payroll growth. Next are the demographic assumptions: mortality, disability, termination and retirement. Finally, we will discuss all of the actuarial methods used.

ECONOMIC ASSUMPTIONS

Actuaries are guided by the Actuarial Standards of Practice (ASOP) adopted by the Actuarial Standards Board (ASB). One of these standards is ASOP No. 27, Selection of Economic Assumptions for Measuring Pension Obligations. This standard provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans.

As no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The economic assumptions are much more subjective in nature than the demographic assumptions. 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 experience.

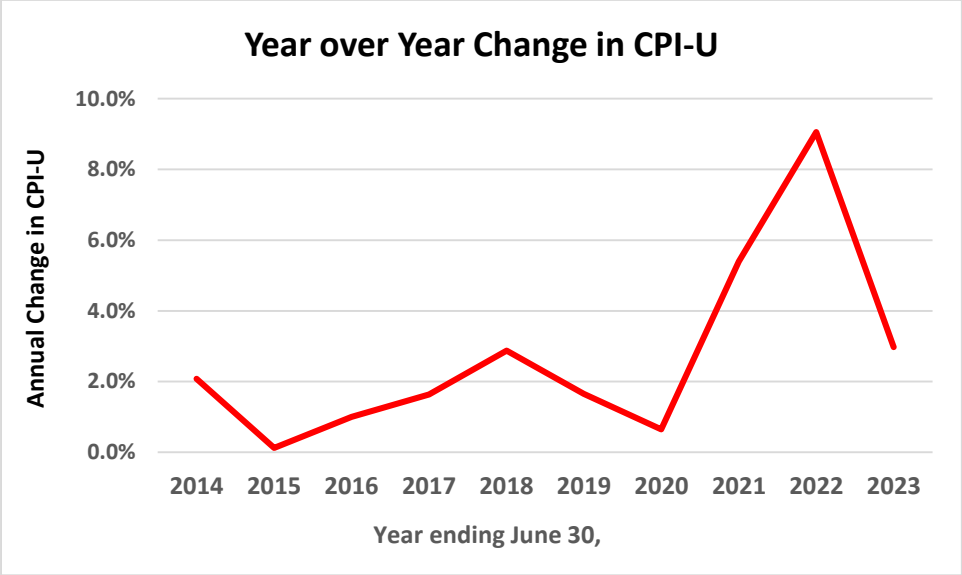
Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period. Nevertheless, the economic assumptions are much more subjective in nature than the demographic assumptions, which in itself can still create a difference in opinion among individuals in the actuarial profession and possibly stakeholders of the Retirement Systems.

Inflation Assumption

By “inflation,” we mean price inflation as measured by annual increases in the Consumer Price Index (CPI). This assumption is not directly used in the projection of future benefits or the calculation of the actuarial accrued liability, but is an underlying theoretical component in the other economic assumptions used in the actuarial valuation. The current annual inflation assumption is 2.25%.

Actual Change in CPI-U

The following chart shows the average annual inflation from June 30 to June 30 for the last ten years. As commonly known, inflation has been benign prior to the year 2000 and the Federal Reserve has been committed to bring inflation back down to its 2.00% policy target since the spike in inflation that began in 2021.

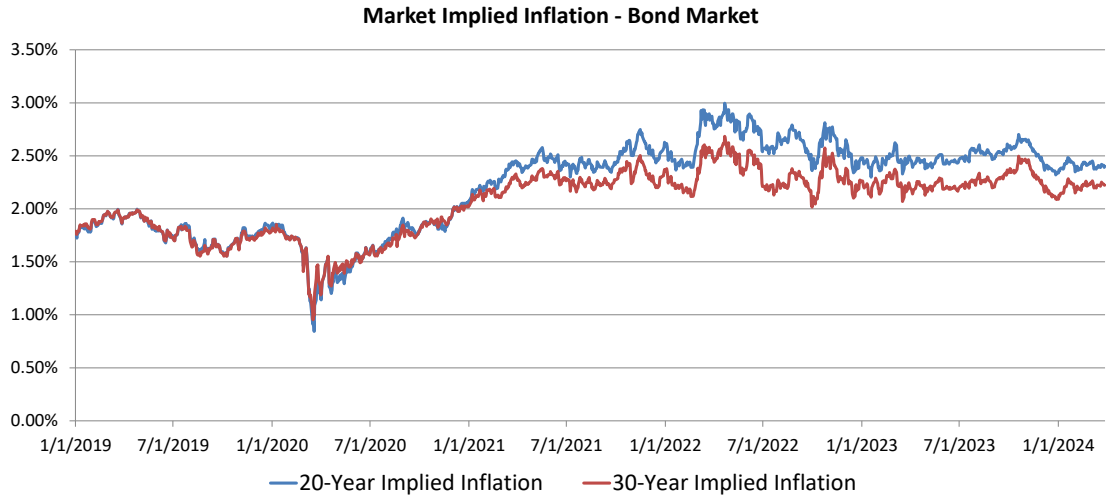


Forecasts from Investment Consulting Firms

Investment consulting firms make an assumption regarding future price inflation when developing their forward-looking capital market assumptions. Versus, the South Carolina Investment Commission's investment consultant, assumes that inflation will increase at the rate of 2.50% per year over the next ten years. Each year Horizon Actuarial Services, LLC compiles and averages investment return forecasts of major investment consulting firms and their 2023 survey of 42 investment consulting firms (including Versus) have an average price inflation assumption of 2.55% over the next 10 years and a 2.46% average inflation assumption over the next 20 to 30 years.

Expectations Implied in the Bond Market

Another source of information about future inflation is the market for US Treasury bonds. For example, the June 30, 2023 yield for 20-year inflation indexed Treasury bonds was 1.56% plus actual inflation. The yield for 20-year non-indexed US Treasury bonds was 4.06%. Simplistically, this means that on that day the bond market was predicting that inflation over the next twenty years would average 2.46% [(1 + 4.06%) / (1 + 1.56%) - 1] per year. The difference in yield for 30-year bonds implies 2.19% inflation over the next 30 years. The following chart shows the historical market implied inflation from January 1, 2019 through March 31, 2024.



Interestingly, the inflation expectations over a 20 year and 30-year period were essentially identical prior to January 1, 2021. Afterwards, the two implied inflation measures have slightly diverged with the implied 20 year being higher than the implied 30 year, which is telling us the market expects inflation in years 20 through 30 to be lower than the average expected inflation over the first 20 years.

Forecasts from Social Security Administration

In the Social Security Administration's 2024 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.4% under the intermediate cost assumption (1.8% and 3.0% in the low cost and high cost scenarios, respectively). The Chief Actuary for the Social Security Administration kept this assumption change from the last two years, but has gradually decreased the assumption from 2.6% in 2019.

Survey of Professional Forecasters and Fed Policy

The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. Their first quarter 2024 survey found inflation expectations over the next ten years (2024 to 2033) to average 2.24%. This average expectation is below their prior quarterly estimates since first quarter of 2021.

Comparison of Inflation Expectations from 2019 to 2024

Finally, the table below provides a comparison of the inflation expectations documented in the 2019 experience study report and the current inflation expectations.

	Inflation Expectations		
Source	**2019**	**2024**	**Change**
(1)	(2)	(3)	(4)
Investment Consultant Survey 20-30 Year[1]	2.29%	2.46%	0.17%
Implied Inflation 20-Year Treasuries	1.75%	2.46%	0.71%
SSA Trustees Report	2.60%	2.40%	-0.20%
Survey of Professional Forecasters	2.20%	2.24%	0.04%

[1] Horizon's Survey of Capital Market Assumptions 2019 and 2023 Edition.

Recommendation

Benefits provided to members in the Systems administered by PEBA (i.e. SCRS, PORS, JSRS, GARS, and SCNG) are not explicitly impacted by the actual change in price inflation, this is a relatively insignificant assumption in the valuation. Rather this assumption theoretically underlies most of the other economic assumptions in the actuarial valuation. We also recognize that actual inflation as measured by CPI has been much higher than the current 2.25% assumption during the last 36 months, however the Federal Reserve Committee has broadcasted repeatedly the Committee seeks to achieve maximum employment and inflation rate of 2% over the longer run. Given the totality of this information, we are not recommending any change to the current 2.25% price inflation assumption.

Investment Return Assumption

The investment return assumption is one of the principal (and most subjective) assumptions 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 calculated contribution rates. The current assumption is 7.00% and is a prescribed assumption set by an outside party in Section 9-16-335 of the South Carolina State Code. The current assumption will expire on June 30, 2025 and the General Assembly must enact a new investment return assumption for use in the July 1, 2025 actuarial valuation.

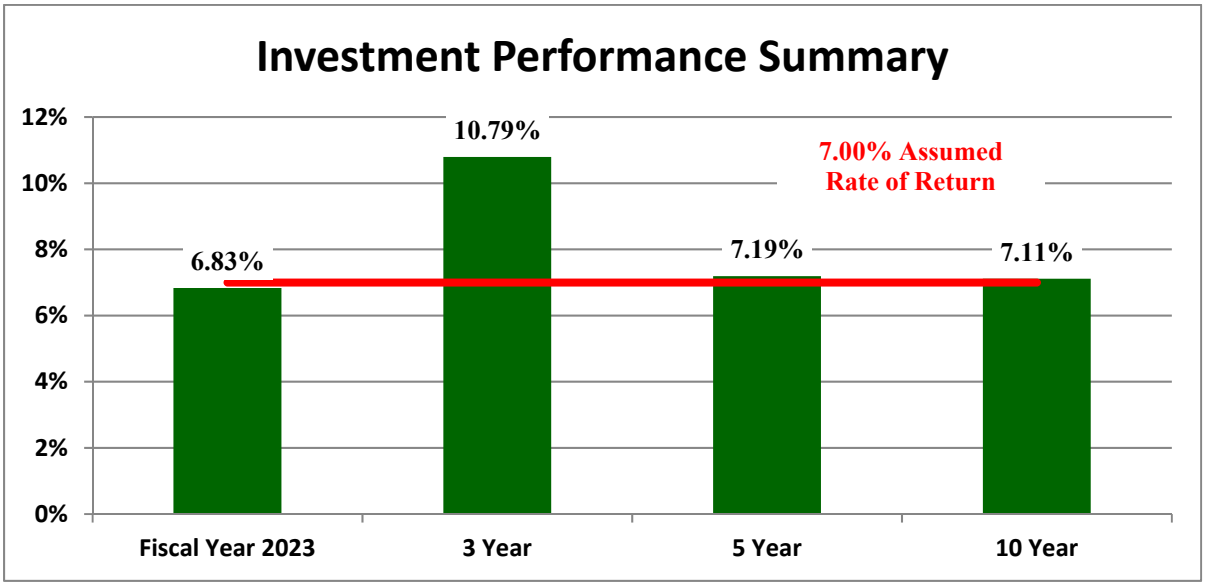
Investment and Administrative Expenses

The trust fund pays expenses in addition to member benefits and refunds, so we must make some assumption about these. It is industry practice that the investment return assumption represents expected return after payment of investment expenses. In regards to investment expenses, anticipated returns developed by investment consulting firms and discussed in more detail later in this section are net of investment related fees (including alternative asset classes such as real estate, private equity, and hedge funds). Therefore, we will not make any adjustments to account for investment related expenses.

On the other hand, the actuarial valuation for each system includes an explicit administrative expense assumption as percentage of payroll that is included in the normal cost rate. Based on the average of plan administrative expenses reported in the 2019 through 2023 annual reports, we are recommending the administrative expense assumption (as a percentage of payroll) to continue to be 18 basis points for SCRS and PORS, and an increase to 40 basis points for JSRS. Given GARS and SCNG make dollar based contributions, in lieu of a percentage of pay contribution, we recommend continued use of a dollar-based administration expense assumption where $20 thousand is added to the dollar amount of the normal cost.

Actual Investment Performance

The following is a chart with the investment return for the last fiscal year as well as the annualized return over the last three and five year period.



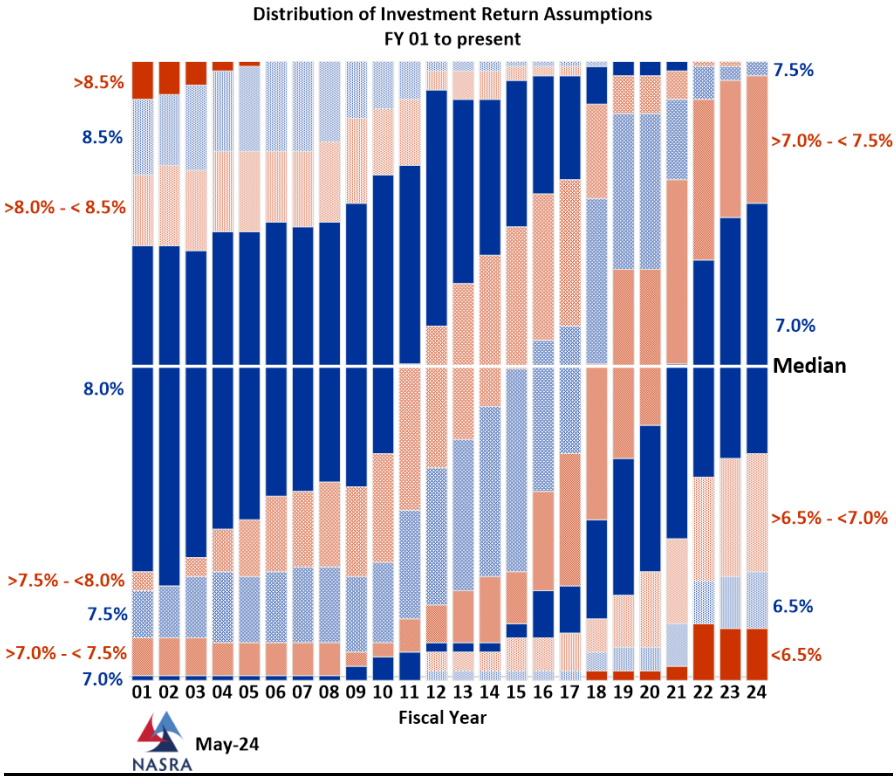
Source: Annualized Comprehensive Financial Report for the fiscal year ending June 30, 2023.

However, past performance is not a reliable indicator of future investment performance, even when returns are averaged over twenty or more years. The actual asset allocation of the trust fund will significantly impact the overall performance, so returns achieved under a different allocation are not meaningful.

Assumption Comparison to Other Retirement Systems

While we do not suggest the selection of an investment return assumption based on prevalence information. It is still informative to understand where the investment return assumption used in the valuation for SCRS compares to that used by other large retirement systems. The chart on the following page provides the distribution of the investment return assumptions in the National Association of State Retirement Systems Administrator's (NASRA) Survey. As the chart shows, up until 2023 there has been a continual shift in the distribution of return assumptions since 2010. However, the distribution of the investment return assumption for 2024 has remain unchanged from the prior year with a median return assumption of 7.00%, which is the same return assumption currently maintained by SCRS.

This is largely a result of the change in economic conditions that begin when the Federal Reserve Committee began raising the Federal Funds rate in the Spring of 2022 to tame inflation, which also resulted in a reset in the valuation of the public equity and fixed income markets resulting in material increases in the future return expectations in capital markets.



Source: NASRA 2024 Investment Survey Results. www.nasra.org

Forecasts Developed by Professional Investment Consultant

We believe an appropriate approach to perform an analysis of the investment return assumption is to identify expected returns given the System's asset allocation mapped to forward-looking capital market assumptions. Because GRS is a benefit 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 Verus, which is the RSIC's investment consultant.

Forecasts Based on 2024 Capital Market Assumptions

Below is a summary of the asset allocation for the System that was used in the analysis, which is based on information reported by the South Carolina Retirement Investment Commission (RSIC).

Asset Class	Allocation
Global Equity	46%
Private Equity	9%
Bonds	26%
Private Debt	7%
Real Assets	12%
Total	**100%**

Where available, investments in these asset classes were split into subgroups to refine the analysis when identifiable. For example, global equity was appropriately allocated into publicly traded domestic and international equity.

The following tables compare the return expectations of seven nationally recognized investment consulting firms (Aon, BNY Mellon, Callan, Cambridge, Meketa, Northern Trust, and Verus) that produce shorter-term 10-year return expectation assumptions.

2024 Market Expectations 10-Year Assumptions				
Capital Market Assumption	Distribution of 10-Year Average Geometric Net Nominal Return			Probability of exceeding 7.00%
	40th	50th	60th	
(1)	(2)	(3)	(4)	(5)
1	5.9%	6.7%	7.6%	47%
2	5.8%	6.8%	7.7%	47%
3	5.9%	6.8%	7.7%	48%
4	6.0%	7.0%	7.9%	50%
5	6.1%	7.0%	7.9%	50%
6	6.3%	7.3%	8.2%	53%
7	6.3%	7.3%	8.3%	53%
Average	**6.0%**	**7.0%**	**7.9%**	**50%**

Notice that the range of the 50th percentile outcome shown in column (3) in the above exhibit ranges from 6.7% to 7.3%, which the current 7.0% investment return assumption in the middle of those expectations.

On the other hand, the investment return assumption used in the actuarial valuation has a significantly longer investment horizon. Therefore, it is necessary to identify and reflect differences in economic and financial market expectations over the short-term and long-term time horizon. The table below provides the same information based on the capital market assumptions for the four firms listed above who also develop capital market expectations for a 20 to 30-year time-horizon.

2024 Market Expectations 20 to 30-Year Assumptions				
Capital Market Assumption	Distribution of 10-Year Average Geometric Net Nominal Return			Probability of exceeding 7.00%
	40th	50th	60th	
(1)	(2)	(3)	(4)	(5)
1	6.2%	7.1%	8.0%	52%
2	6.2%	7.2%	8.1%	52%
3	6.4%	7.4%	8.3%	54%
4	7.2%	8.1%	9.1%	62%
Average	**6.5%**	**7.5%**	**8.4%**	**55%**

Recommendation

The average of the expected return for the seven investment consultants over the next 10-year period is 7.00%. Similarly, the analysis shows that the average of the expected return for the four investment consultants over the next 20 to 30 years is 7.50%. Given the volatility in these expectations from year to year and the value in having stability in this assumption, we find the current 7.00% investment return assumption remains reasonable and are recommending no change at this time.

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;
- Overtime;
- Promotions; or
- Merit increases, if available.

Our salary increase assumption is meant to reflect all of these types of increases, since all of these affect the salaries used in benefit calculations and upon which contributions are made.

An actuary should not look at the overall increases in total payroll when setting this assumption, because total payroll can increase 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. This causes the growth in total payroll to be smaller than the average pay increase for individual employees. Second, total payroll can change due to an increase or decrease in the size of the employee group. Rather we examine the actual compensation increases on an individual basis.

We analyzed the salary increases based on the change in each member's reported pay from one year to the next. That is, we looked at each member who appeared as an active member in two consecutive valuations—these are called continuing active members—and measured his/her salary increase.

Salary increases for governmental employees can also vary significantly from year to year. When the employer's tax revenues stall or increase slowly, salary increases are often small or nonexistent. Salary increases can be larger following economic expansions and contract discussions with employee associations that may result in a fairly material one-time "catch-up" salary increase. Therefore, for this assumption in particular, we prefer to use data over a longer period in establishing our assumptions and used a ten-year period to analyze this assumption.

Below is a table showing the average increase experienced by continuing members by year for members in various groups. As the table shows, the average salary increases members received in years 2020 through 2023 were noticeably higher than the average salary increases in years 2010 through 2013 when states were still recovering from budget shortfalls due to the Great Financial Crisis.

Fiscal Year Ending	State and Local Gov Employees	Public School Employees	PORS
2010	1.8%	0.7%	1.5%
2011	1.5%	2.4%	2.7%
2012	3.1%	5.2%	2.2%
2013	3.7%	3.9%	5.2%
2014	6.3%	4.8%	5.3%
2015	8.3%	4.7%	5.9%
2016	8.3%	5.5%	6.4%
2017	6.6%	5.2%	8.1%
2018	3.9%	4.1%	5.8%
2019	4.8%	5.2%	6.5%
2020	5.4%	6.8%	6.6%
2021	4.2%	4.4%	3.8%
2022	7.2%	7.9%	9.1%
2023	9.1%	7.9%	13.8%
Average 10-19	4.8%	4.2%	5.0%
Average 14-23	6.4%	5.7%	7.1%

Experience Excluded in this Analysis

New Experience Included in this Analysis

The salary assumption can be thought of as consisting of wage inflation (the component of the pay increase that is provided to all members) and an additional component to reflect step increases and other increases typically correlated with a member's service. 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 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.

The current assumptions follow this pattern for all employee groups. 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 – SCRS and PORS

Many of the sources of pay increases have diminished importance for longer-service employees. Step or service-related increases are usually smaller and promotions occur with less frequency. Additional training or acquisition of advanced degrees usually occurs early in the career. Thus, our salary increase assumption has an ultimate level when members are assumed to receive increases equal to wage inflation plus smaller increases for merit, promotion, and longevity.

When we examine the experience for long-service members (i.e. members with more than 20 years of service), we find that over the last ten years, their increases have averaged as follows:

Employee Group	Average Salary Increase Long-Service Members	Actual Price Inflation (CPI-U)	Difference
State and Local Gov Employees	3.3%	2.7%	0.6%
Public School Employees	3.2%	2.7%	0.5%
PORS	4.1%	2.7%	1.4%

We are proposing no change in the current 0.75% assumed rate salary increases in excess of inflation for long-service employees (State, Local Gov, and Public School) in SCRS. Combined with the recommended 2.25% price inflation assumption, the salary increase assumption for employees with 20 or more years of service is 3.00%. Similarly, we are also proposing no changes in the 1.25% assumed rate salary increases in excess of inflation for members in PORS. This will result in a 3.50% assumed annual rate of salary increase for long-service members in PORS.

Salary increase assumptions for shorter-service employees – SCRS and PORS

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, public school employees with five years of service received an average increase of 5.86%, which was 2.86% more than the average increase of 3.00% for the same type of employee with more than twenty years of service. This component of the salary scale assumption behaves more like a demographic assumption than an economic assumption, and therefore, the historical experience has a high level of creditability for purposes of establishing future expectations.

The overall pattern of the step-rate / promotional assumption at the various services for members with less than 20 years of service remain reasonable, but we are recommending a parallel shift upward in the assumption for each of the three membership groups. Specifically, we are recommending a 0.15% increase in the salary assumption for State and Local government members, a 0.25% increase in the salary assumption for public school employees, and a 0.50% increase in the salary assumption for members in PORS.

Details of our analysis are shown in Section X beginning on pages 86-88.

Salary Increases – Combined Effect – SCRS and PORS

The table below shows the average expected increase in compensation for continuing members for the last ten years, reconciling the changes from the current to proposed assumptions:

Group	Actual Increase	Actual Inflation	Salary Increase over Inflation		
			Current Assumption[1]	Actual[2]	Proposed Assumption[1]
General Employees	6.4%	2.7%	1.7%	3.7%	1.9%
Public School Employees	5.7%	2.7%	1.5%	3.0%	1.8%
PORS	7.1%	2.7%	1.8%	3.2%	2.3%

[1] The expected average increase in salary in excess of the 2.25% assumed rate of inflation.
[2] The actual salary increase in excess of inflation for all continuing active members during the 10-year observation period.

As the table shows, we are recommending an increase in the salary assumption, but the recommended salary assumption still remains below the actual experience over the last 10 years. This is intentional as a material portion of the recent salary increases are to necessary to compensate employees competitively within the tight job market. As the job market returns to more normal levels, we believe the salary increases received by these public employees will also normalize, but at a slightly higher level than currently assumed.

Salary Increases – JSRS

All members in the retirement system for judges and solicitors receive the same percentage increase in salary. The judicial retirement system provides retirees and surviving spouses a cost of living adjustment equal to the percentage increase in the compensation provided to the position they retired. For example, a 3.0% salary increase to active members will result in a 3.0% increase in the retirement allowance for the retirees. Therefore, the salary increase assumption will also be used to model the assumed rate of future cost of living increases for retirees. Below is a table with the historical salary increases received by these members.

Historical Salary Increases Budgeted by the Judicial Department							
FY Beginning July 1,	Salary Increase		FY Beginning July 1,	Salary Increase		FY Beginning July 1,	Salary Increase
2009	0.0%		2014	2.0%		2019	35.8%
2010	0.0%		2015	0.0%		2020	0.0%
2011	0.0%		2016	3.3%		2021	2.5%
2012	3.0%		2017	0.0%		2022	3.0%
2013	0.0%		2018	0.0%		2023	5.0%

As the data shows, except for 2019, the actual historical salary increases have been relatively low and, in many years, nonexistent. Even with the relatively large salary increase in 2019, the average salary increase for the last 15 years was 3.6%.

Judicial salaries and salary increases (if any) are incorporated into annual budgets developed by the Judicial Department and submitted to the General Assembly for approval. The current salary increase assumption is 3.00% and we recommend maintaining that assumption.

Salary Increases – GARS and SCNG

Members in GARS are provided compensation that is established in State Statute that has not changed in more than two decades. Also, because the system is closed and there are only 44 active members as July 1, 2023, a salary increase assumption is not necessary. Similarly, there is no salary increase assumption for the SCNG as the supplemental retirement benefit is not a function of compensation.

Payroll Growth Rate

The salary increase rates discussed above are assumptions applied to individuals and are used in projecting future benefits. A separate payroll growth assumption (currently 2.70% annually) is used for 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.

While certain economic shocks can cause short-term volatility in the difference between wage inflation and price inflation, 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 last 10 years, wage inflation (as measured by the change in NAW) has been about 0.55% a year larger than price inflation for the economy as a whole (2.35% increase in NAW versus a 1.80% increase in CPI-U).

The chart below shows the average annual payroll growth for SCRS, the average annual growth in membership, and net payroll growth not due to membership growth. Contributing payroll and contributing membership includes members earning benefits, members in TERI, working retirees, and members in the State ORP. We believe it is appropriate to include each of these members in the analysis because it encompasses the employers' workforce and the payroll that SCRS receives contributions.

Average Annual Payroll and Membership Increase Rates for SCRS					
Period	Increase in Contributing Payroll	Increase in Contributing Members	Increase in Excess of Membership	Actual Inflation	Payroll Increase in Excess of Actual Inflation and Membership Change
Last 1-Year	7.29%	2.49%	4.80%	2.97%	1.83%
Last 3-Years	4.43%	0.74%	3.69%	5.78%	-2.09%
Last 5-Years	4.14%	0.64%	3.50%	3.90%	-0.40%
Last 10-Years	3.71%	0.67%	3.04%	2.71%	0.33%

Average Annual Payroll and Membership Increase Rates for PORS					
Period	Contributing Payroll	Increase in Contributing Members	Increase in Excess of Membership	Actual Inflation	Payroll Increase in Excess of Actual Inflation and Membership Change
Last 1-Year	13.39%	4.29%	9.10%	2.97%	6.13%
Last 3-Years	5.41%	-0.11%	5.52%	5.78%	-0.26%
Last 5-Years	5.10%	0.31%	4.79%	3.90%	0.89%
Last 10-Years	4.72%	0.00%	4.72%	2.71%	2.01%

During the last ten years the total population for the state has steadily increased, on average, 1.2% per year over the last 10 years (5.374 million in 2023 versus 4.772 million in 2013). We believe that the governmental workforce would also increase as the State's population increases, but at a lower rate than the rate of increase of the State's population because governmental operations continue to use technology to improve service (or provide the same level of service to more people) as measured on a per employee basis. Given the historical change in contributing payroll (in nominal amount) we recommend the continued use of a 2.70% payroll growth assumption for SCRS and PORS. While the actual payroll growth experience for PORS has been greater than that experienced by SCRS this is a long-term assumption and in-theory we would expect that long-term changes in covered payroll for each system to be relatively the same.

Note, this assumption has no impact on the actuarial accrued liability, but this assumption will increase the number of years the System is projected to attain a 100% funded ratio. Also, the payroll growth assumption becomes less significant assumption as the existing funding period decreases.

Given the structure of the salaries and salary increases provided to members in JSRS, we are also recommending the continued use of a 3.00% payroll growth assumption which is equal to the 3.50% salary increase assumption less 0.50% for the promotional component of the individual salary increase assumption.

Demographic Assumptions

Actuaries are guided by the Actuarial Standards of Practice (ASOP) adopted by the Actuarial Standards Board (ASB). One of these standards is ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This standard provides guidance to actuaries giving advice on selecting noneconomic assumptions for measuring obligations under defined benefit plans. We believe the recommended assumptions in this report were developed in compliance with this standard.

Post-Retirement Mortality Rates (Liability and Cost Calculations)

SCRS's actuarial liabilities depend in part on how long retirees live. If members live longer, benefits will be paid for a longer period of time, and the liability will be larger.

In the last experience study, we created mortality tables (i.e. the 2020 Public Retirees of South Carolina Mortality Table) for use in the actuarial valuation of each system because that provided a suitable fit to the actual mortality experience of the non-disabled retirees in the systems maintained by PEBA. This mortality assumption also included an explicit assumption of continued improvement in mortality in future years. Below is a table with the life expectancy for a retired member who attains age 65.

Current Mortality Assumption - Life Expectancy for an Age 65 Retiree in Years				
Group	**Year of Retirement**			
	2025	**2030**	**2035**	**2040**
General Employee – Male	21.2	21.5	21.8	22.1
General Employee - Female	23.3	23.6	23.9	24.2
Public School Employees - Male	21.4	21.7	22.0	22.3
Public School Employees - Female	24.3	24.6	24.9	25.2
PORS - Male	19.0	19.3	19.6	19.9
PORS - Female	23.1	23.4	23.6	23.9

Analysis of Credibility of the Retirement Systems' Mortality Experience

Our analysis made use of credibility theory to identify appropriate multipliers to improve the fit of the table to the observed experience. The method for this approach can be found in the article *"Selecting Mortality Tables: A Credibility Approach" October 2008*. Statistical analysis suggests 1,082 deaths per gender is sufficient to be considered fully credible, as at that amount of experience we are 90% confident that the observed experience is within +/- 5% of the actual pattern. The following table gives the number of deaths needed by gender to have a given level of confidence that the data is +/- X% of the actual pattern.

Standard Score	Confidence	99% – 101%	97% – 103%	95% – 105%	90% – 110%	80% – 120%
0.674	75%	4,543	505	182	45	11
1.282	80%	16,435	1,826	657	164	41
1.645	90%	27,060	3,007	1,082	271	68
1.96	95%	38,416	4,268	1,537	384	96
2.576	99%	66,358	7,373	2,654	664	166

The South Carolina Retirement Systems (SCRS and PORS) had 8,570 male and 16,328 female observed deaths for SCRS over the last five years. As shown by the statistical credibility table, we are 99% confident that the data for males is slightly less than 3% of the true mortality experience, and between 1% and 3% of the true mortality experience for females. We believe five years is reasonable to demonstrate sufficient statistical credibility, however, we will use seven years of experience in developing the base mortality tables to provide more data (and higher credibility) at the non-core ages of retiree mortality assumption.

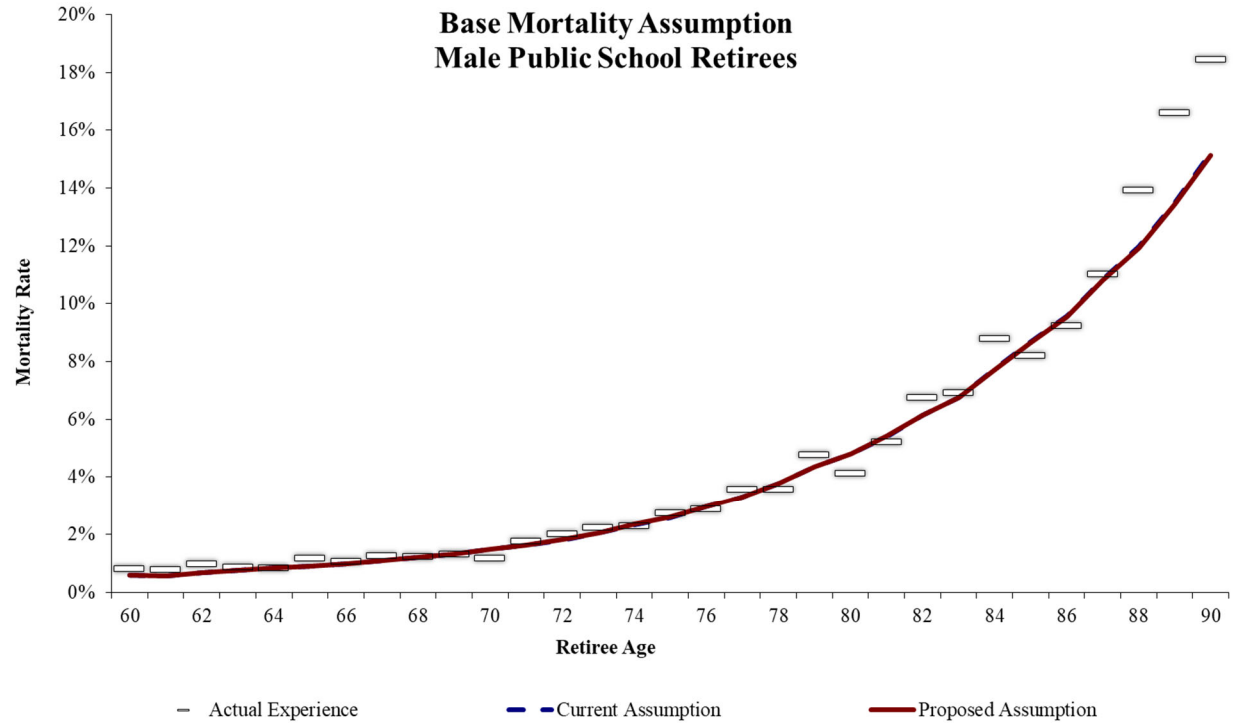
Recommended Base Mortality Assumption

We performed our analysis using a benefit weighted approach, where we measure the exposures and actual deaths as the retiree's benefit amount, rather than a headcount approach that applies an equal weighting to all retirees. Developing a base table with using a benefit weighted approach is preferable because: (1) research studies have consistently shown that higher wage earners generally have a longer life expectancy than lower wage earners and (2) this approach should better model the actual liability that is released when retirees die. Furthermore, a benefit weighted approach is the same method used by the SOA when they develop published mortality tables.

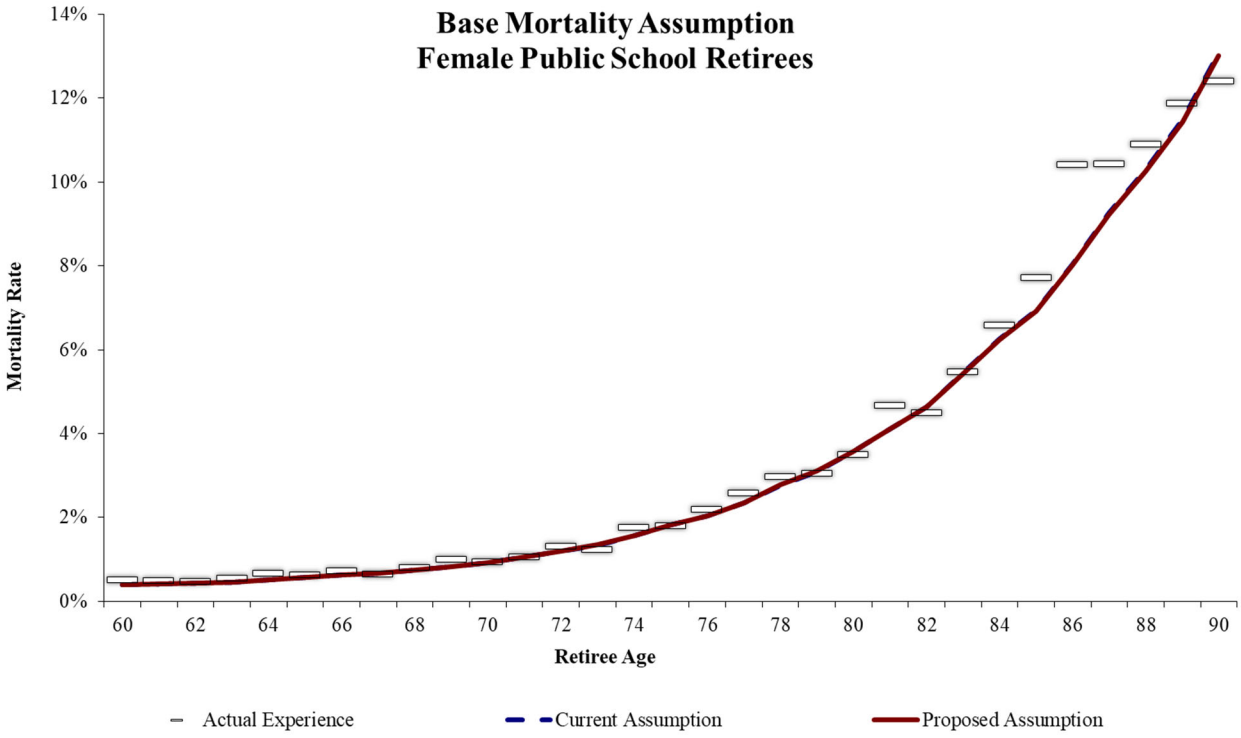
As we previously noted, we developed a System specific mortality assumption for the last two experience studies because published mortality tables available at that time, including the Pub-2010 mortality assumptions released by the Society of Actuaries', were not as form-fitting to the System's observed mortality experience across the entire retiree age range as that we could achieve using a System Specific mortality assumption.

As we review of the mortality experience for males and females, we found that the mortality table developed in the last experience study provided an excellent fit to the actual experience for both genders. As a result, we are not recommending a change or update to the base mortality assumption.

The following are charts showing the actual mortality experience compared to the assumption for female and male retirees. As the chart shows, both the current assumption continues to provide a suitable fit to the actual experience.



Below is a similar chart showing the same information for female retirees.



Recommended Mortality Improvement Assumption

The mortality assumption since 2011 has included an explicit assumption for mortality improvement. Because of the strategy of using a continuous improvement assumption, life expectancies for today's younger members are projected to be longer than those of today's retirees, and this provides substantial stability and dependability on costs and liabilities.

The MP improvement assumptions developed and released by the Society of Actuaries from 2014 through 2019 reflect the same ultimate rate of improvement after their approximate 15-year select period at approximately 1% per year for most ages. However, this improvement assumption was updated in with the release of the 2020 MP projection scale. Given mortality rates in the southeast region of the country, including South Carolina, are amongst the highest in the country and the observed rate of improvement for retirees in SCRS continues to be approximately 80% of the ultimate mortality improvement rates in the MP tables, referred to as the "UMP" projection scales, over the last decade, we are recommending the continued use of 80% of the UMP projection rates, but using the 2020 MP projection scale as the explicit rate of future improvement in mortality.

Recommended Non-Disabled Mortality Assumption

Below are the specific mortality assumptions. Note, the multipliers remain unchanged from that developed and recommended in the 2019 experience study.

State and Local Government Retirees:
Males: 2020 PRSC for Males multiplied by 97%
Females: 2020 PRSC for Females multiplied by 107%

Public School Employees:
Males: 2020 PRSC for Males multiplied by 95%
Females: 2020 PRSC for Females multiplied by 94%

Retirees in PORS:
Males: 2020 PRSC for Males multiplied by 127%
Females: 2020 PRSC for Females multiplied by 107%

The mortality assumption will improve using 80% of the ultimate rates of the 2020 MP improvement assumption. The following page provides a table with the life expectancy for an age 65 retiree, in years, under the recommended mortality assumption.

Life Expectancy for an Age 65 Retiree in Years				
Group	**Year of Retirement**			
	2025	**2030**	**2035**	**2040**
General Employee – Male	21.1	21.4	21.6	21.9
General Employee - Female	23.1	23.4	23.6	23.9
Public School Employees - Male	21.2	21.5	21.8	22.1
Public School Employees - Female	24.1	24.3	24.6	24.8
PORS - Male	19.0	19.3	19.6	19.9
PORS - Female	23.1	23.4	23.6	23.9

Recommended Non-Disabled Mortality Assumption for JSRS, GARS, and the SCNG

Below is a table with the actual number of deaths and expected number of deaths based on the current assumption for retirees in JSRS, GARS, and the SCNG.

Mortality Experience for Non-Disabled Retirees for the Nine-Year Period Ending June 30, 2023			
		Current Assumption	
Retirement System	Actual	Expected	A/E
JSRS	44	43	102%
GARS	100	101	99%
SCNG	1,519	1,538	99%

As the table shows, the number of retirees (and deaths) in these systems do not provide sufficient statistical credibility to establish a mortality assumption based on solely on their own experience. Therefore, we recommend the mortality assumption for the systems be as follows:

JSRS: Same assumption used for retired Public School Employees in SCRS
GARS: Same assumption used for retired State and Local Government employees in SCRS
SCNG: Same assumption used for retirees in PORS

Disabled Retiree Mortality Rates

This is a less significant assumption than the mortality assumption for non-disabled retirees, because approximately only about one out of ten retirees are receiving a disability retirement. However, because the number of disabled retirees is much smaller, there is not statistically sufficient experience to develop a Retirement System specific assumption and we must continue to rely on using a published table.

The current disability mortality assumption for SCRS and PORS is the Pub-2010 Disabled Retiree Mortality table, with various multipliers applied to the different employee groups and genders to provide an appropriate fit to the experience. The analysis shows that the base mortality table tracked reasonably well to the experience and should continue to be used.

We must rely on professional judgement regarding the appropriate multipliers to use for the base tables for published disability mortality tables. For instance, members in SCRS must qualify for Social Security Disability benefits in order to be eligible to receive a disability retirement benefit in the System, which can be a much higher standard than the disability eligibility provisions in the experience used to develop a published mortality table. Reasons like this will result in differences in mortality and life expectancy experience for disabled retirees in SCRS versus PORS. Therefore, we recommend using the General Disabled Retiree Mortality for state and local government employees with a 140% multiplier for males and 130% multiplier for females. The recommended multiplier for PORS is 100% for males and females. For public school employees, we recommend using the Teacher Disabled Retiree Mortality tables with a multiplier of 130% for males and 120% for females. Finally, we also recommend using the updated mortality improvement assumption to be consistent with the mortality improvement assumption that is used for non-disabled retirees.

Mortality Experience for Disabled Retirees for the Nine-Year Period Ending June 30, 2023					
		Current		Recommended	
Group	Actual	Expected	A/E	Expected	A/E
General Employee - Male	193	211	91%	208	93%
General Employee - Female	160	164	98%	161	99%
Public School Employees - Male	52	46	114%	45	115%
Public School Employees – Female	143	147	98%	145	99%
PORS – Males	67	83	81%	81	83%
PORS – Female	14	18	77%	18	79%

($ in millions of benefit amount)

There are no disabled retirees in JSRS, GARS and the SCNG. However, we recommend that the disability mortality assumption for JSRS and GARS continue to use the same disability mortality assumption that is used for disabled retired public school employees and disabled retired general employees, respectively, in the event there becomes a disabled retiree. Since SCNG does not provide a disability benefit, and the census data does not classify any of the retirees in the SCNG as disabled retirees, a disability mortality assumption is not used.

Details are provided in Section X on pages 95-100.

Active Mortality Rates

This is the least significant of all the mortality assumptions because the mortality rates for active members are considerably lower than mortality rates for retired members (nondisabled and disabled). Similar to the mortality assumption for disabled retirees, there are not a sufficient number of deaths during employment within the Retirement System to develop a System specific assumption. Again, we must rely on a published mortality table.

For general employees in SCRS and GARS we recommend the Pub-2010 General Employee Below-Median Income tables with a one-year set forward for males and a two-year set forward for females. For public school employees and JSRS we recommend using the Pub-2010 General Employee Below-Median Income tables with a one-year set forward for females. For PORS and SCNG we recommend the Pub-2010 Safety Below-Median Income tables with no adjustment. Finally, this assumption will include the same generational mortality improvement assumption that is used for non-disabled and disabled retirees.

Details are shown in Section X on pages 101-106.

Disability Incidence

The disability rates are intended to reflect the probability that a member will retire with a disability retirement allowance. We analyzed the disability experience separately by gender for general employees, public school employees, and members in PORS. Because there are a relatively few number of females in PORS, we combined the males and females to increase the credibility of the experience.

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 (eight years of service for Class Three) and members eligible for retirement are not eligible for an ordinary disability benefit. We also reviewed the data to determine if there was a noticeable lag in the Retirement System's classifying a retiree as a disabled retiree. From our observations, we did not include an explicit adjustment to the actual experience to account for disabled retirees that are not initially classified as a disabled retiree in the following year's census information we receive from PEBA, but we did consider the classification lag in our recommended assumption. Finally, the disability retirement benefit provided by SCRS and PORS is the same for all types of disability (i.e. duty and non-duty related disabilities). However, given there is little difference in benefits for these types of disabilities, we believe an analysis of the different types of disability is not necessary for purposes of developing assumptions for the valuation.

Below is a table with a summary of the results of the analysis for the four-year period ending June 30, 2023.

Number of Disability Incidences for the Four-Year Period Ending June 30, 2023					
		Current Assumption		Recommended Assumption	
Group	Actual	Expected	A/E	Expected	A/E
General Employee - Male	156	316	49%	208	75%
General Employee - Female	174	408	43%	211	82%
Public School Employees - Male	55	69	80%	59	93%
Public School Employees - Female	228	266	86%	251	91%
PORS – Males and Females	281	569	49%	393	72%

The number of disabilities over the last four years continues to be less than expected for SCRS and PORS. The experience over in this study continues the decreasing trend in disability incidence observed over the prior two experience studies and is likely the result of the pension reform legislation (Act 278) enacted in 2012 that changed the disability eligibility provisions and made it more restrictive for members in SCRS to be eligible to receive a disability retirement after January 1, 2014. Based on the recent experience as well as

the experience we have observed in prior studies, we are recommending a decrease in the disability rates for each of the employee groups (i.e. general employees, public school employees, and members in PORS) to be closer with recent experience.

There were no actual disability retirements in GARS or JSRS. However, since both systems provide a disability benefit and it is possible for a member in both systems to become disabled, it is appropriate to have a disability incidence assumption. Specifically, we recommend the valuation for each of these Systems use the same disability incidence rates that are used for public school employees. SCNG does not provide a disability retirement benefit; however, it is reasonable to expect that disability discharges occur. The census data we receive does not provide identifiers regarding disability events, therefore we recommend using the same disability assumption as PORS.

Details are shown in Section X on pages 107-111

Termination Rates

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

The current termination rates are composed of two distinct assumptions, one for the first ten years of service that we refer to as the "select" period and a separate assumption for terminations after the ten-year period that we refer to as the "ultimate" period. Different assumptions are applied to public school employees and general employees. However, as the majority of active members have become Class 3 members (SCRS and PORS) which have different retirement eligibility provisions than Class 2 members, we believe it is acceptable to modify the structure of the current termination rate assumption such that it is strictly based on the member's service.

A higher paid member has a larger liability relative to a lower paid member. Along those lines, the termination pattern for the higher paid members will have more impact on the future liabilities of the plan. Therefore, we have weighted the experience by salary and are counting the payroll and the portion of the payroll that terminates employment (versus headcount) for the last 10 years. For this assumption, it is more conservative to have an A/E ratio over 100%.

General Employees and Public School Employees

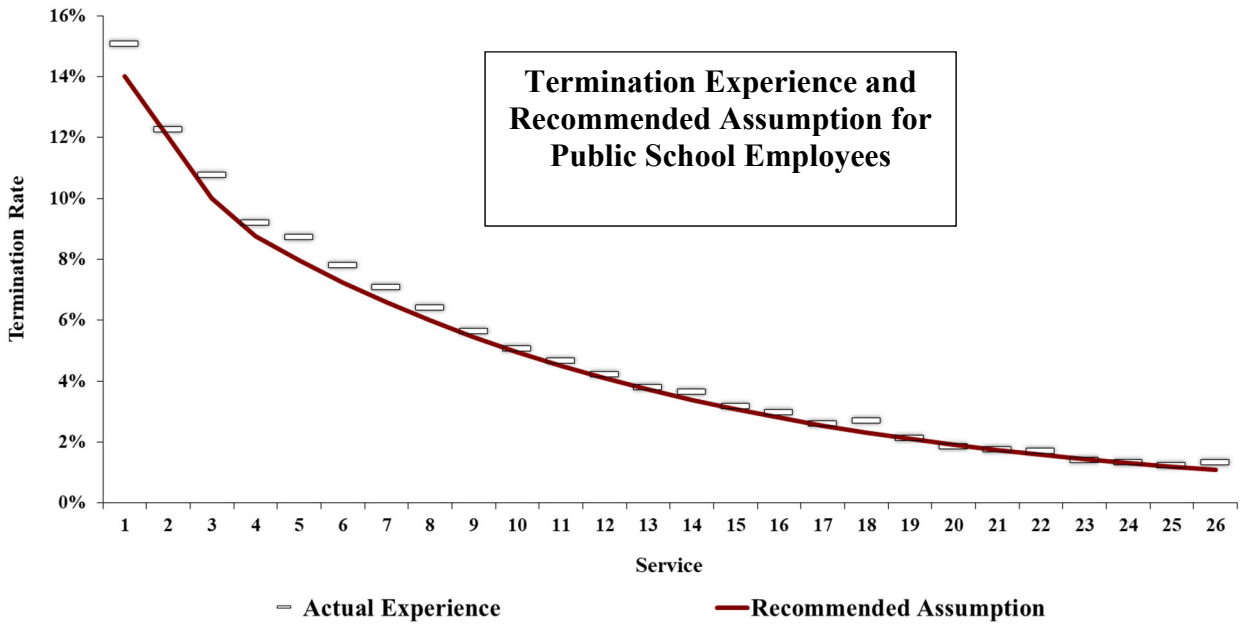
The results of analyses were compared separately for males and females and due to similarities in the behavior across the service spectrum, the same termination rates are used for males and females. Members in PORS have hire ages that are more closely grouped together at younger ages (i.e. early in their career) and a termination structure based solely on service continues to provide a reasonable fit across the spectrum of the assumption. We are recommending some increase in the termination rates for members with more than five years of service.

The following are tables with a summary of the results for the termination rates by employee group:

($ in millions of payroll)

Summary of Termination Experience					
		Current Assumption		Recommended Assumption	
Group	Actual	Expected	A/E	Expected	A/E
General Employees	$59	$47	125%	$57	105%
Public School Employees	37	32	116%	35	105%
PORS	22	19	112%	20	106%

As the tables show, the rates of termination were slightly increased for every group except male public school employees. The following chart shows the termination experience for public school employees along with the recommended assumption.



Details of the termination experience for SCRS and PORS are provided in Section X on pages 112-114.

JSRS, GARS and the SCNG

Members in JSRS are currently not assumed to terminate employment prior to retirement. Given the nature of their employment, this is a logical and reasonable assumption. In addition, experience during the last five-year period supports this assumption. We recommend continuing to assume all members remain active in the system until retirement.

Similarly, there is no termination assumption for members in GARS. While it periodically occurs where a member becomes inactive because they decide not to run for office or win a reelection, this retirement plan has a special provision that allows inactive members to elect to continue earning future service in the

system by contributing the required member contributions (i.e. special contributing member). As a result of this special provision, we assume that all eligible inactive members elect to become special contributors to continue earning retirement benefits. Therefore, the current assumption is reasonable and appropriate.

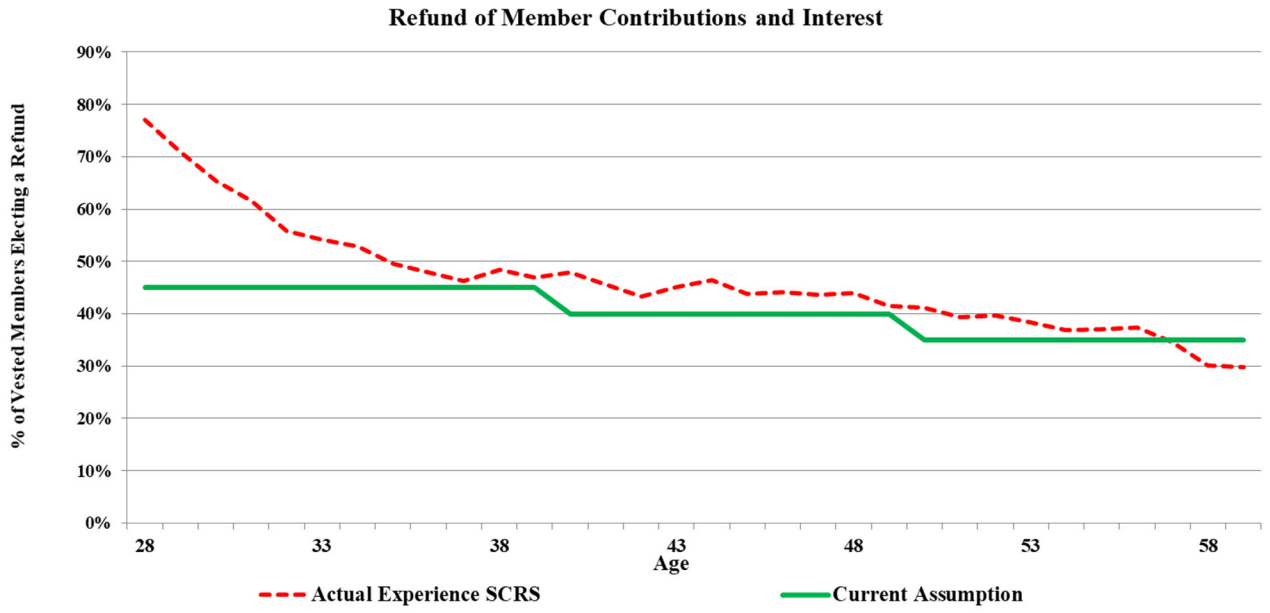
The actuarial valuation for the SCNG currently has a 10% per year termination assumption for members with 20 years of service and 5% for members with 21 to 29 years of service. Experience for the last five years was found to remain relatively consistent since the prior experience study analysis. While there were fewer actual terminations for members with less than 30 years of service, we believe the current assumption remains reasonable given the structure of the benefit accrual and the retirement eligibility provisions.

Refund of Member Contributions and Interest for SCRS

If a member terminates employment with a vested benefit (i.e. after five years of service for Class Two members and eight years of service for Class Three members) but prior to their retirement age, they may keep their member contributions in the System and receive a monthly annuity when they reach their eligible retirement age or withdraw their member contributions at any time and forfeit their monthly annuity. Currently, the valuation for SCRS incorporates an explicit refund assumption that varies by age, while the valuation for PORS assumes that members will refund their contributions if the value of their member contributions exceeds the value of their deferred monthly retirement benefit.

The current member contribution rate in SCRS is 9.0% of pay and that rate has been in effect since fiscal year 2018. Statutes also specify that member contribution balances no longer receive interest when the member becomes inactive. The combination of relatively large contribution balances and the psychological effect of knowing their member balance does not earn additional interest post-employment can result in many employees electing a refund of their contribution balance, even when it may be less valuable than the deferred monthly benefit. Therefore, we recommend retaining an explicit assumption that is consistent with membership behavior.

Below is a chart with the actual refund behavior for vested members in SCRS as well as the current explicit refund assumption. Note, this analysis excludes members who terminate employment prior to becoming vested in their retirement benefit because the only benefit these members will receive is a refund of their contributions with interest. At this time, we are not recommending a change to this assumption.



Retirement Rates

The retirement rates are used to model when an employee will commence their retirement allowance. There are separate assumptions for males and females, and for General Employees, Public School Employees, and PORS. Since retirement eligibility can be strictly service based, the assumed rate of retirement is also based on the member's service. This means that the same rate of retirement is applied to all members of the same service, regardless of differences in age. There is an additional retirement probability applied for the age a member is first eligible to commence their retirement benefit and return to employment without being subject to working retiree restrictions.

For this assumption we analyzed the experience weighted by the member's liability; in other words, we have counted the liability and the portion of the liability that retires. Thus, the retirement pattern for the members with a greater liability will have a larger impact on the future liabilities of the plan. For this assumption, it is more conservative to have an A/E ratio less 100%, however, it is still reasonable to have an A/E ratio greater than 100% if there is reason to believe that future retirement experience will be different than the experience period reviewed.

SCRS and PORS

The pension reform legislation enacted during the 2012 legislative session included substantial changes to certain retirement provisions. There are separate retirement assumptions that are applied to the Class Two and Class Three members due to differences in retirement eligibility. However, since there is no experience yet to measure for these members, we are not recommending any changes to the current assumption for Class Three members in SCRS.

The first table shown below is the analysis of members electing a reduced retirement benefit. Note, this assumption is less significant than the rates of retirement with an unreduced benefit because the

unreduced retirement benefit is relatively more valuable and the majority of active members work until they are eligible for an unreduced retirement benefit.

Reduced Retirements for the Five-Year Period Ending June 30, 2023					
		Current Assumption		Recommended Assumption	
Group	Actual	Expected	A/E	Expected	A/E
General Employees	$5,737	$6,598	87%	$5,956	96%
Public School Employees	4,977	5,951	84%	5,000	100%

($ in thousands of liability)

A far more important assumption is the retirement behavior for members who are eligible for an unreduced retirement. The table shows the actual retirements as well as the expected retirements under the current and proposed assumptions for the membership groups in SCRS and PORS that elect a reduced retirement benefit.

Unreduced Retirements for the Five-Year Period Ending June 30, 2023					
		Current Assumption		Recommended Assumption	
Group	Actual	Expected	A/E	Expected	A/E
General Employees	$634,106	$516,120	123%	$504,185	126%
Public School Employees	22,631	13663	166%	22349	101%
Police Officers Retirement System	6,680	6,197	108%	6,756	99%

($ in millions of liability)

As the table shows, except for public school employees, there were slightly fewer retirements in SCRS than expected during the five-year period ending June 30, 2023. The largest adjustment that is necessary is the increase in the retirement rates for public school employees after attaining 28 or more years of service. The overall retirement experience for PORS members was more in line with expectations, however, we are recommending some adjustments to the retirement rates at certain ages.

Details of the retirement experience for Class Two members are shown in Section X pages 115-127.

Other Retirement Systems (JSRS, GARS, and the SCNG)

Similar to SCRS and PORS, a benefit-weighted approach was used to review the retirement experience for JSRS. However, we reviewed the retirement experience on a headcount basis for GARS and the SCNG due to the relatively small number of retirees and because benefits earned by members in these systems are uniform (i.e. salaries are essentially identical for members in GARS and irrelevant for determining benefits provided by the SCNG).

Retirements for the Five-Year Period Ending June 30, 2023					
		Current Assumption		Recommended Assumption	
Group	Actual	Expected	A/E	Expected	A/E
JSRS	$66,698	$56,600	118%	$55,695	120%
SCNG	130	167	78%	167	78%
GARS	11	15	72%	15	72%

Note: The experience for JSRS was measured on a liability weighted basis ($ in thousands). The experience for GARS was measured on a headcount basis and only reflects legislators retiring before attaining age 70. The experience for SCNG was also measured on a headcount basis and only reflects members retiring with between 15 and 35 years of service.

The design of these retirement systems has a significant influence on retirement behavior. For example, in JSRS the retirement benefit is capped at 90% of pay for the Judges upon attaining 32 years of service (31 years for Solicitors and Public Defenders) and these members are allowed to commence their retirement benefit while continuing to service their position. As a result, many judges commence their retirement when the benefit attains the 90% of pay cap. We recommend continued use of a service base assumption without any changes to the current assumption.

GARS is a closed system and there are only 44 active members as of July 1, 2023. As a result, the retirement assumption is becoming an immaterial assumption as there were only 11 actual retirements over the last five years and 15 expected retirements. We recommend no change to the current retirement assumption for GARS. Similarly, the retirement experience for the SCNG continues to measure fairly well to the current retirement assumption and we recommend no changes to that assumption as well.

Other Assumptions

There are other assumptions made in the course of a valuation, such as the percentage of members who are married, the age difference between members and spouses, unused annual and sick leave, etc. We have thoroughly reviewed all of these ancillary assumptions, and believe they are generally realistic and/or conservative. Therefore, we recommend no changes to these other assumptions.

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 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 and recommend no change.

For members who have correlated service with another employer, the cost method will assume the

member has no accrued liability at the date of hire and will accrue all benefits from the hire date with the current employer. Service from the other employers will be used in determining retirement eligibilities, but not in allocating the accruals over the career of the employee.

Actuarial Asset Method

The purpose of using an actuarial asset method is to dampen the short-term volatility in the financial market while ensuring that a large investment (gain) or loss that occurs in a single year is fully recognized within a five-year period.

In the 2015 experience study, the Board adopted the current actuarial asset method, which the actuarial value of assets is based on a calculation method that recognizes an investment gain or loss occurring each year over the subsequent five years at the rate of 20% per year. This asset method is the most common asset valuation method used by large public retirement systems and we do not recommend any changes.

Funding Policy

The funding reform enacted in 2017 amended the South Carolina State Code to specify the employer contribution rate for SCRS and PORS as well as specify a maximum permitted funding period that is 24 years as of 2023 and will decrease to 20 years in the year 2027. We believe this new funding policy will substantially improve the sustainability of these two Systems. We believe the Board's update to the funding policy for JSRS that established a minimum contribution rate based on the same maximum funding period for SCRS is appropriate and the State's increased payroll-based contributions and annual appropriations are expected to continue to be sufficient to satisfy the Board's funding policy.

The funding period for GARS in the next actuarial valuation (i.e. July 1, 2024 valuation) will be 3 years. To provide increased stability in the contribution requirements and still achieving PEBA's goal of fully funding the plan, we recommend using a layered amortization method that separately amortizes each years' *new* gains and losses over a closed 5-year period.

The SCNG is also funded over a closed period, with 12-years remaining as July 1, 2014. However, the general assembly has made a recent practice of budgeting a $5.290 million appropriation each year which have been greater than the actuarially determined contribution amount (e.g. $3.837 million for fiscal year 2024). Given the system is 63% funded as of July 1, 2023, we are not recommending any changes to the funding policy or the General Assembly's practice of budgeting the current contribution amounts.

SECTION IV

ACTUARIAL IMPACT OF RECOMMENDATIONS

Estimated Actuarial Impact of Recommendations

The following pages provide the financial impact of the recommended assumptions for each retirement system.

Estimated Actuarial Impact for SCRS and PORS

The demographic assumptions adopted by the Board would be first used in preparing the 2024 actuarial valuation. The investment return assumption does not expire until June 30, 2025 and a new assumption adopted by the General Assembly would change beginning with the July 1, 2025 actuarial valuation. However, since we are not recommending any change to the economic assumptions at this time, we are illustrating the financial impact as of July 1, 2023, the date of the last actuarial valuation. Column (1) provides the actuarial valuation results based on the 2023 actuarial valuation, the last valuation performed for the System. Column (2) is the actuarial valuation results based on the recommended assumptions for the Board to adopt and first be used to prepare the July 1, 2024 actuarial valuation.

Estimated Actuarial Impact for JSRS, GARS, and SCNG

The timing to incorporate the recommended demographic and economic assumptions for the three smaller systems maintained by PEBA (JSRS, GARS, SCNG) will be the same as SCRS and PORS. As such we are illustrating the financial impact of these systems the same as SCRS and PORS.

Fiscal Impact SCRS

Pro Forma of Cost Estimate Based on the 2023 Actuarial Valuation

(Dollar amounts expressed in thousands)

		Current Assumptions (1)	New Assumptions (2)
1.	Projected payroll of active members[1]	$ 11,041,023	$ 11,041,023
2.	Present value of future pay	$ 87,600,649	$ 83,505,909
3.	Normal cost rate		
	a. Total normal cost rate	10.89%	10.96%
	b. Less: member contribution rate	-9.00%	-9.00%
	c. Employer normal cost rate	1.89%	1.96%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 31,386,509	$ 31,661,028
	b. Less: present value of future normal costs	(9,113,395)	(8,740,521)
	c. Actuarial accrued liability	$ 22,273,114	$ 22,920,507
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 35,169,807	$ 35,049,932
	b. Inactive members	1,721,128	1,720,210
	c. Active members (Item 4c)	22,273,114	22,920,507
	d. Total	$ 59,164,049	$ 59,690,649
6.	Actuarial value of assets	$ 34,253,870	$ 34,253,870
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 24,910,179	$ 25,436,779
8.	Funded Ratio	57.9%	57.4%
9.	Required Contribution Rate		
	a. Employer normal cost rate	1.89%	1.96%
	b. Employer contribution rate available to amortize the UAAL	16.67%	16.60%
	c. Total employer contribution rate	18.56%	18.56%
10.	Funding period based on the required employer contribution rate (years)[2]	15.3	15.9
11.	Applicable statutorily required contribution rates[3]		
	a. Employer contribution rate	18.56%	18.56%
	b. Member contribution rate	9.00%	9.00%

[1] The projected payroll does not include payroll for members in ORP or working retirees.

[2] The funding period for 2023 is determined on an actuarial value of asset basis and is based on the contribution rate scheduled to become effective for FY 2025 (i.e. beginning July 1, 2024 and ending June 30, 2025).

[3] The actual employer contribution rates in effect for FY 2024, and FY 2025 is 18.56% of pay. These contribution rates include the cost of incidental death benefits.

Fiscal Impact PORS

Pro Forma of Cost Estimate Based on the 2023 Actuarial Valuation

(Dollar amounts expressed in thousands)

		Current Assumptions (1)	New Assumptions (2)
1.	Projected payroll of active members[1]	$ 1,601,690	$ 1,601,690
2.	Present value of future pay	$ 13,089,302	$ 12,966,651
3.	Normal cost rate		
	a. Total normal cost rate	15.22%	15.72%
	b. Less: member contribution rate	-9.75%	-9.75%
	c. Employer normal cost rate	5.47%	5.97%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 5,789,516	$ 5,906,988
	b. Less: present value of future normal costs	(1,933,576)	(1,982,313)
	c. Actuarial accrued liability	$ 3,855,940	$ 3,924,674
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 5,515,114	$ 5,511,713
	b. Inactive members	335,588	335,993
	c. Active members (Item 4c)	3,855,940	3,924,674
	d. Total	$ 9,706,642	$ 9,772,380
6.	Actuarial value of assets	$ 6,400,701	$ 6,400,701
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 3,305,941	$ 3,371,679
8.	Funded Ratio	65.9%	65.5%
9.	Required Contribution Rate		
	a. Employer normal cost rate	5.47%	5.97%
	b. Employer contribution rate available to amortize the UAAL	15.77%	15.27%
	c. Total employer contribution rate	21.24%	21.24%
10.	Funding period based on the required employer contribution rate (years)[2]	15.2	16.3
11.	Applicable statutorily required contribution rates[3]		
	a. Employer contribution rate	21.24%	21.24%
	b. Member contribution rate	9.75%	9.75%

[1] The projected payroll does not include payroll for working retirees.

[2] The funding period for 2023 is determined on an actuarial value of asset basis and is based on the contribution rate scheduled to become effective for FY 2025 (i.e. beginning July 1, 2024 and ending June 30, 2025).

[3] The actual employer contribution rates in effect for FY 2024, and FY 2025, are 21.24%, and 21.24% of pay, respectively. These contribution rates include the cost of incidental death benefits.

Fiscal Impact JSRS

Pro Forma of Cost Estimate Based on the 2023 Actuarial Valuation

(Dollar amounts expressed in thousands)

		Current Assumptions (1)	New Assumptions (2)
1.	Projected payroll of active members[1]	$ 33,639	$ 33,639
2.	Present value of future pay	$ 242,650	$ 243,462
3.	Normal cost rate		
	a. Total normal cost rate	30.58%	30.61%
	b. Less: member contribution rate	-10.00%	-10.00%
	c. Employer normal cost rate	20.58%	20.61%
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 218,116	$ 217,322
	b. Less: present value of future normal costs	(71,262)	(71,034)
	c. Actuarial accrued liability	$ 146,854	$ 146,288
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 329,669	$ 327,833
	b. Inactive members	1,213	1,271
	c. Active members (Item 4c)	146,854	146,288
	d. Total	$ 477,736	$ 475,392
6.	Actuarial value of assets	$ 221,629	$ 221,629
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 256,107	$ 253,763
8.	Funded Ratio	46.4%	46.6%
9.	Required Contribution Rate		
	a. Employer normal cost rate	20.58%	20.61%
	b. Employer contribution rate available to amortize the UAAL	42.36%	42.33%
	c. Total employer contribution rate[2]	62.94%	62.94%
10.	Funding period based on the required employer contribution rate (years)[3]	20.6	20.3

[1] The projected payroll is based on all filled and unfilled positions.

[2] The 62.94% contribution rate is for the fiscal year beginning July 1, 2019 and certified by the Board to conform with the funding in the State Budget. The contribution rate includes the cost of incidental death benefits.

[3] The calculated funding period also assumes the System will receive $2.9 million in annual appropriations while the System has unfunded liability.

Fiscal Impact GARS

Pro Forma of Cost Estimate Based on the 2023 Actuarial Valuation

(Dollar amounts expressed in thousands)

		Current Assumptions (1)	New Assumptions (2)
1.	Projected payroll of active members	$ 1,000	$ 1,000
2.	Present value of future pay	$ 5,261	$ 5,262
3.	Normal cost rate		
	a. Total normal cost	$ 222	$ 226
	b. Less: member contributions	(110)	(110)
	c. Employer normal cost	$ 112	$ 116
4.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 11,894	$ 11,896
	b. Less: present value of future normal costs	(989)	(1,009)
	c. Actuarial accrued liability	$ 10,905	$ 10,887
5.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 53,997	$ 53,782
	b. Inactive members	2,951	2,952
	c. Active members (Item 4c)	10,905	10,887
	d. Total	$ 67,853	$ 67,621
6.	Actuarial value of assets	$ 45,723	$ 45,723
7.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 22,130	$ 21,898
8.	Funded Ratio	67.4%	67.6%
9.	Annual Required Contribution		
	a. Employer normal cost	$ 112	$ 116
	b. Employer contribution to amortize the UAAL	6,088	6,000
	c. Total employer contribution	$ 6,200	$ 6,116
10.	Funding period (years)	4	4

Fiscal Impact SCNG

Pro Forma of Cost Estimate Based on the 2023 Actuarial Valuation

(Dollar amounts expressed in thousands)

		Current Assumptions (1)	New Assumptions (2)
1.	Normal cost rate		
	a. Total normal cost	$ 801	$ 816
	b. Less: member contributions	0	0
	c. Employer normal cost	$ 801	$ 816
2.	Actuarial accrued liability for active members		
	a. Present value of future benefits	$ 29,834	$ 30,171
	b. Less: present value of future normal costs	(6,950)	(7,135)
	c. Actuarial accrued liability	$ 22,884	$ 23,036
3.	Total actuarial accrued liability		
	a. Retirees and beneficiaries	$ 37,031	$ 36,973
	b. Inactive members	9,060	9,077
	c. Active members (Item 4c)	22,884	23,036
	d. Total	$ 68,975	$ 69,087
4.	Actuarial value of assets	$ 43,401	$ 43,401
5.	Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	$ 25,574	$ 25,686
6.	Funded Ratio	62.9%	62.8%
7.	Annual Required Contribution		
	a. Employer normal cost	$ 801	$ 816
	b. Employer contribution to amortize the UAAL	2,820	2,834
	c. Total employer contribution	$ 3,621	$ 3,650
8.	Funding period (years)	13	13

SECTION V

SUMMARY OF NEW ASSUMPTIONS (SCRS)

Summary Of Actuarial Methods And Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the South Carolina Retirement System.

Investment Rate of Return

Assumed annual rate of 7.00% net of investment and administrative expenses composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

Rates of annual salary increase are assumed to vary for the first 20 years of service due to expected merit and promotional increases which differs by employee group. Beginning with the 21st year of service, the assumed annual rate of increase is 3.00% for both groups and for all future years of service.

The 3.00% rate of increase is composed of a 2.25% inflation component and a 0.75% real rate of wage increase (productivity) component.

Active Male & Female Salary Increase Rate				
Years of Service	General Employees		Teachers	
	Annual Promotional/Longevity Rates of Increase	Total Annual Rate of Increase Including 3.00% Wage Inflation	Annual Promotional/Longevity Rates of Increase	Total Annual Rate of Increase Including 3.00% Wage Inflation
1	6.65%	9.65%	8.25%	11.25%
2	4.15%	7.15%	8.00%	11.00%
3	2.40%	5.40%	3.75%	6.75%
4	1.90%	4.90%	2.75%	5.75%
5	1.65%	4.65%	2.50%	5.50%
6	1.40%	4.40%	2.25%	5.25%
7	1.40%	4.40%	2.00%	5.00%
8	1.15%	4.15%	1.75%	4.75%
9	1.15%	4.15%	1.75%	4.75%
10	0.90%	3.90%	1.50%	4.50%
11	0.90%	3.90%	1.50%	4.50%
12	0.65%	3.65%	1.25%	4.25%
13	0.65%	3.65%	1.00%	4.00%
14	0.65%	3.65%	1.00%	4.00%
15	0.65%	3.65%	0.75%	3.75%
16	0.65%	3.65%	0.75%	3.75%
17	0.65%	3.65%	0.50%	3.50%
18	0.65%	3.65%	0.50%	3.50%
19	0.40%	3.40%	0.50%	3.50%
20	0.40%	3.40%	0.50%	3.50%
21-29	0.15%	3.15%	0.25%	3.25%
30+	0.00%	3.00%	0.00%	3.00%

Active Member Decrement Rates

a. Assumed rate of Service Retirement are shown in the following tables. The first table is for Class Two members who attain age 65 before attaining 28 years of service. The second table is based on service and is for Class Two members who attain 28 years of service before age 65. The third table provides the retirement rates applicable to Class Three members.

Class Two Annual Age Based Retirement Rates						
Age	General Employees			Public School Employees		
	Reduced		Normal*	Reduced		Normal*
	<25 YOS	>= 25 YOS		<25 YOS	>= 25 YOS	
55	0%	7%	0%	0%	5%	0%
56	0%	7%	0%	0%	6%	0%
57	0%	7%	0%	0%	7%	0%
58	0%	7%	0%	0%	8%	0%
59	0%	7%	0%	0%	9%	0%
60	5%	7%	0%	10%	15%	0%
61	5%	7%	0%	10%	15%	0%
62	15%	17%	0%	15%	20%	0%
63	15%	17%	0%	15%	20%	0%
64	15%	17%	0%	15%	20%	0%
65	0%		25%	0%		25%
66	0%		30%	0%		30%
67	0%		30%	0%		30%
68	0%		25%	0%		25%
69	0%		25%	0%		25%
70	0%		25%	0%		25%
71	0%		25%	0%		25%
72	0%		25%	0%		25%
73	0%		25%	0%		25%
74	0%		25%	0%		25%
75	0%		100%	0%		0%

* Normal retirement rate 30% for general, and 40% for teachers, at ages 62 - 64 and age 65 with more than 15 years of service.

(i.e., the ages the member is eligible to concurrently commence benefits and continue employment.)

Class Two Annual Service Based Retirement Rates*		
Years of Service	General Employees	Teachers
28	27%	35%
29	20%	24%
30	14%	24%
31	14%	24%
32	14%	24%
33	14%	24%
34	14%	24%
35	14%	24%
36	14%	24%
37	14%	24%
38	14%	24%
39	14%	24%
40	20%	30%
41	20%	30%
42	20%	30%
43	20%	30%
44	20%	30%
45	25%	50%
46	25%	50%
47	25%	50%
48	25%	50%
49	25%	50%
50 & Over	100%	100%

* Normal retirement rate 30% for general, and 40% for teachers, at ages 62 - 64 and age 65 with more than 15 years of service.

Class Three Annual Age Based Retirement Rates					
Age	General Employees		Public School Employees		
	Reduced	Normal*	Reduced	Normal*	Rule of
55	0%	0%	0%	0%	20%
56	0%	0%	0%	0%	20%
57	0%	0%	0%	0%	20%
58	0%	0%	0%	0%	20%
59	0%	0%	0%	0%	20%
60	5%	0%	10%	0%	20%
61	5%	0%	10%	0%	20%
62	15%	0%	15%	0%	20%
63	15%	0%	15%	0%	20%
64	15%	0%	15%	0%	20%
65	0%	25%	0%	25%	20%
66	0%	30%	0%	30%	20%
67	0%	30%	0%	30%	20%
68	0%	25%	0%	25%	20%
69	0%	25%	0%	25%	20%
70	0%	25%	0%	25%	20%
71	0%	25%	0%	25%	20%
72	0%	25%	0%	25%	20%
73	0%	25%	0%	25%	20%
74	0%	25%	0%	25%	20%
75	0%	100%	0%	0%	100%

* Normal retirement rate 30% for general, and 40% for teachers, at ages 62 - 64 and age 65 with more than 15 years of service.
(i.e., the ages the member is eligible to concurrently commence benefits and continue employment.)
** The "Rule of 90" retirement rates do not apply if the "Rule of 90" is achieved on or after age 65.

b. Assumed rates of disability are shown in the following table.

Disability Rates				
Age	General Employees		Public School Employees	
	Males	Females	Males	Females
25	0.0225%	0.0150%	0.0140%	0.0172%
30	0.0450%	0.0210%	0.0210%	0.0231%
35	0.0675%	0.0420%	0.0280%	0.0231%
40	0.1125%	0.0540%	0.0525%	0.0403%
45	0.1575%	0.0780%	0.0875%	0.0825%
50	0.2250%	0.1320%	0.1400%	0.1320%
55	0.3600%	0.2100%	0.2275%	0.2145%
60	0.4500%	0.3210%	0.3500%	0.3300%
64	0.5625%	0.4470%	0.4375%	0.4125%

c. Active Member Mortality

Rates of active member mortality are based upon the amount-weighted PUB-2010 Public Retirement Plans Mortality Table for General Employees and Teachers with no adjustments and includes future improvement in mortality.

Active Mortality Rates (Multiplier Applied) *				
Age	General Employees		Teachers	
	Males	Females	Males	Females
25	0.0410%	0.0120%	0.0220%	0.0110%
30	0.0520%	0.0190%	0.0300%	0.0170%
35	0.0680%	0.0300%	0.0410%	0.0260%
40	0.0960%	0.0470%	0.0570%	0.0400%
45	0.1430%	0.0720%	0.0900%	0.0620%
50	0.2180%	0.1070%	0.1490%	0.0930%
55	0.3200%	0.1570%	0.2320%	0.1350%
60	0.4660%	0.2380%	0.3570%	0.2040%
64	0.6310%	0.3440%	0.5290%	0.3070%
Multiplier	100%	100%	100%	100%

* For purpose of determining active death benefits, 5% of active deaths of general employees and teachers are assumed to be duty related.

d. Rates of Withdrawal

Termination rates vary by employee group and by the number of years remaining of service a member has. Sample rates are shown in the tables below.

Years of Service	SCRS - General Employees	SCRS - Teachers
	Male and Female	Male and Female
0	0.2300	0.1400
1	0.1700	0.1200
2	0.1400	0.1000
3	0.1111	0.0875
4	0.1023	0.0796
5	0.0941	0.0724
6	0.0866	0.0658
7	0.0797	0.0598
8	0.0734	0.0544
9	0.0675	0.0495
10	0.0622	0.0450
11	0.0572	0.0409
12	0.0527	0.0372
13	0.0485	0.0338
14	0.0446	0.0308
15	0.0410	0.0280
16	0.0378	0.0255
17	0.0348	0.0231
18	0.0320	0.0210
19	0.0294	0.0191
20	0.0271	0.0174
21	0.0249	0.0158
22	0.0230	0.0144
23	0.0211	0.0131
24	0.0194	0.0119
25	0.0179	0.0108
26	0.0165	0.0098

Refund of Member Contributions

The following percentage of vested members are assumed to elect to receive a refund of contributions upon termination of employment prior to becoming eligible to commence a service retirement benefit. This assumption is based on the plan's experience.

Age:	less than 40	40 - 49	50 and Over
Refund Rate:	45%	40%	35%

Post Retirement Mortality

a. Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by the 80% of Scale UMP to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Nondisabled Annuitant Mortality Rates Before Projection (Multiplier Applied)				
Age	General Employees		Teachers	
	Males	Females	Males	Females
50	0.1920%	0.2192%	0.1880%	0.1926%
55	0.3243%	0.2824%	0.3176%	0.2481%
60	0.5751%	0.3863%	0.5633%	0.3393%
65	0.8761%	0.5616%	0.8580%	0.4934%
70	1.4502%	0.9097%	1.4203%	0.7992%
75	2.5442%	1.7869%	2.4918%	1.5698%
80	4.7175%	3.5220%	4.6202%	3.0941%
85	8.5346%	6.8204%	8.3587%	5.9917%
90	14.9914%	12.8871%	14.6823%	11.3214%
Multiplier	97%	107%	95%	94%

The life expectancies for a 65 year old retiree in future years based on the assumption with full generational projection are shown as follows:

Life Expectancy for an Age 65 Retiree In Years					
Employee Type / Gender	Year of Retirement				
	2020	2025	2030	2035	2040
General Employee - Male	20.8	21.1	21.4	21.6	21.9
General Employee - Female	22.8	23.1	23.4	23.6	23.9
Teacher - Male	20.9	21.2	21.5	21.8	22.1
Teacher - Female	23.8	24.1	24.3	24.6	24.8

b. A separate table of mortality rates is used for disabled retirees based on the Pub-2010 Public Retirement Plans Disabled Mortality tables on a fully generational basis by 80% of Scale UMP to account for future mortality and with multipliers based on plan experience. The following are sample rates of the base table:

Disabled Annuitant Mortality Rates Before Projection (Multiplier Applied)				
Age	General Employees		Teachers	
	Males	Females	Males	Females
50	2.2470%	1.9279%	2.0865%	1.7796%
55	2.9596%	2.2646%	2.7482%	2.0904%
60	3.5042%	2.5428%	3.2539%	2.3472%
65	4.2616%	2.9328%	3.9572%	2.7072%
70	5.4614%	3.7206%	5.0713%	3.4344%
75	7.2688%	5.2039%	6.7496%	4.8036%
80	10.2872%	7.8091%	9.5524%	7.2084%
85	15.1410%	12.1303%	14.0595%	11.1972%
90	22.7542%	17.7645%	21.1289%	16.3980%
Multiplier	140%	130%	130%	120%

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of the actual investment return in excess of (or less than) expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The contribution rate is set by statute for both employees and employers. The funding period is determined, as described below, using the Entry Age Normal actuarial cost method. The Entry Age Normal actuarial cost method allocates the plan's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

The calculation of the amortization period takes into account scheduled increases to contribution rates applicable to future years and payroll growth. Also, the calculation of the actuarial determined contribution rate and amortization period reflects additional contributions the System receives with respect to ORP participants and return to work retirees. These contributions are assumed to grow at the same payroll growth rate as for active employees. It is assumed that amortization payments are made monthly at the end of the month.

Development of the Contribution Rate and Funding Period

The calculation of the employer and member contribution rate as well as the derived funding period takes into account several differences in the contributions paid by the various members as well as the delayed timing (if any) in the effective date of the new contribution rate. Specifically, the factors that are reflected in the calculation of the contribution rate include:

1) The cost (normal cost and actuarial accrued liability) due to incidental death benefits provided to members in the ORP.

2) Member and employer contributions made on the payroll of working retirees are being used to finance the unfunded actuarial accrued liability since these members do not have a normal cost. Also, the number of working retirees is expected to decrease due to changes in working after retirement provisions enacted with the 2012 legislative changes.

3) The money collected on the payroll of members in ORP that is allocated to finance the unfunded liability in SCRS, which is the SCRS employer contribution rate less 5%, is less than the money collected on the payroll of members in SCRS to finance the unfunded actuarial accrued liability.

4) For purposes of calculating the amortization cost and funding period, discrete pay increases and continuous interest was assumed, with amortization payments made at the end of each month.

Unused Annual Leave

To account for the effect of unused annual leave on Annual Final Compensation, liabilities for active members are increased 2.14%.

Unused Sick Leave

To account for the effect of unused sick leave on members' final credited service for Class Two members, the service of active Class Two members who retire is increased 3 months. Unused sick leave is not included in determining the credited service for Class Three Members.

Future Cost-of-living Increases

Benefits are assumed to increase 1% annually or $500 beginning on the July 1st following the receipt of 12 monthly benefit payments. The $500 limit in the annual increase is not indexed to escalate in the future years.

Payroll Growth Rate

The total annual payroll of active members (also applies to ORP and rehired retiree participants) is assumed to increase at an annual rate of 2.70%. This rate represents the underlying expected annual rate of wage inflation and does not anticipate increases in the number of members. The number of rehired retirees is expected to remain constant in future years.

Other Assumptions

1. The normal cost rate is increased by 0.18% to account for administrative expenses that are paid with plan assets.

2. Valuation payroll (used for determining the amortization contribution rate): Prior fiscal year payroll projected forward one year using the overall payroll growth rate. This was determined seperately for return to work employees by dividing the actual member contributions received during the prior fiscal year by the applicable member contribution rate and rolled-forward one year with the payroll growth assumption.

3. Individual salaries used to project benefits: Actual salaries from the past fiscal year are used to determine the final average salary as of the valuation date. For future salaries, the salary from the last fiscal year is projected forward with one year's salary scale.

4. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported salaries represent amounts paid to members during the year ended on the valuation date.

5. Percent married: 100% of members are assumed to be married.

6. 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.

7. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.

8. Inactive population: All non-vested members are assumed to take an immediate refund.

9. There will be no recoveries once disabled.

10. No surviving spouse will remarry and there will be no children's benefit.

11. Decrement timing: Terminations and unreduced retirement for public school employees are assumed to occur at the beginning of the year. Decrements of all types are assumed to occur mid-year.

12. 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.

13. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

14. 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.

15. Benefit Service: All members are assumed to accrue 1 year of eligibility service each year.

16. All calculations were performed without regard to the compensation limit in IRC Section 401(a)(17) and the benefit limit under IRC Section 415.

Participant Data

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

The data for active members included birthdate, gender, service with the current employer and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

SECTION VI

SUMMARY OF NEW ASSUMPTIONS (PORS)

Summary Of Actuarial Methods And Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the South Carolina Police Officers Retirement System.

Investment Rate of Return

Assumed annual rate of 7.00% net of investment and administrative expenses composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

Rates of annual salary increase are assumed to vary for the first 21 years of service to include anticipated merit and promotional increases. The assumed annual rate of increase is 3.50% for all members with 22 or more years of service.

The 3.50% rate of increase is composed of a 2.25% inflation component and a 1.25% real rate of wage increase (productivity) component.

Active Male & Female Salary Increase Rate		
Years of Service	PORS	
	Annual Promotional/Longevity Rates of Increase	Total Annual Rate of Increase Including 3.50% Wage Inflation
1	7.50%	11.00%
2	6.50%	10.00%
3	3.75%	7.25%
4	2.25%	5.75%
5	2.00%	5.50%
6	1.75%	5.25%
7	1.75%	5.25%
8	1.50%	5.00%
9	1.50%	5.00%
10 - 13	1.25%	4.75%
14	1.00%	4.50%
15 - 21	0.75%	4.25%
22-29	0.50%	4.00%
30+	0.00%	3.50%

Active Member Decrement Rates

a. Assumed rates of Service Retirement are shown in the following tables. The first table is for members who attain age 55 before attaining 25 years of service (27 for Class Three). The second table is based on service and is for members who attain 25 years of service (Class Two)/27 years of service (Class Three) before age 55.

Annual Age Based Retirement Rates	
Age	PORS
	Male and Female
55	20%
56	20%
57	20%
58	12%
59	12%
60	12%
61	25%
62	25%
63	25%
64	25%
65	25%
66	25%
67	25%
68	25%
69	25%
70 & Over	100%

Annual Service Based Retirement Rates		
Years of Service		PORS
Class Two	Class Three	Males and Females
25	27	30%
26	28	20%
27	29	18%
28	30	18%
29	31	18%
30	32	18%
31	33	18%
32	34	18%
33	35	21%
34	36	21%
35	37	21%
36	38	21%
37	39	21%
38	40	21%
39	41	21%
40	42	21%
41	43	21%
42	44	21%
43	45	21%
44	46	21%
45	47	100%

b. Assumed rates of disability are shown in the following table. Thirty percent of disabilities are assumed to be duty-related.

Disability Rates		
Age	PORS	
	Males	Females
25	0.1200%	0.1200%
30	0.1600%	0.1600%
35	0.3000%	0.3000%
40	0.4000%	0.4000%
45	0.6000%	0.6000%
50	0.7500%	0.7500%
55+	0.0000%	0.0000%

c. Active Member Mortality

Rates of active member mortality are based upon the amount-weighted PUB-2010 Public Retirement Plans Mortality Table for Safety with applicable multipliers to better reflect anticipated experience and provide margin for future improvement in mortality.

Active Mortality Rates (Multiplier Applied)		
Age	PORS	
	Males	Females
25	0.0500%	0.0260%
30	0.0550%	0.0360%
35	0.0620%	0.0490%
40	0.0780%	0.0660%
45	0.1090%	0.0900%
50	0.1590%	0.1230%
55	0.2330%	0.1670%
60	0.3510%	0.2270%
64	0.4990%	0.2900%
Multiplier	100%	100%

For purposes of determining active death benefits, 10% of active deaths are assumed to be duty related.

d. Rates of Withdrawal

Rates are developed for each employee group and differ by service. Sample rates are shown in the tables below.

Annual Withdrawal Rate	
Years of Service	PORS
	Male and Female
1	0.2500
2	0.1800
3	0.1400
4	0.1200
5	0.1070
6	0.1002
7	0.0893
8	0.0796
9	0.0709
10	0.0632
11	0.0591
12	0.0526
13	0.0469
14	0.0418
15	0.0373
16	0.0362
17	0.0323
18	0.0288
19	0.0257
20	0.0229
21	0.0221
22	0.0196
23	0.0176
24	0.0156

Post Retirement Mortality

a. Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by the 80% of Scale UMP to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	PORS	
	Males	Females
50	0.2513%	0.2192%
55	0.4246%	0.2824%
60	0.7530%	0.3863%
65	1.1471%	0.5616%
70	1.8988%	0.9097%
75	3.3311%	1.7869%
80	6.1765%	3.5220%
85	11.1742%	6.8204%
90	19.6279%	12.8871%
Multiplier	127%	107%

The life expectancies for a 65 year old retiree in future years based on the assumption with full generational projection are shown as follows:

Life Expectancy for an Age 65 Retiree In Years					
Gender	Year of Retirement				
	2020	2025	2030	2035	2040
Male	18.7	19.0	19.3	19.6	19.9
Female	22.8	23.1	23.4	23.6	23.9

b. A separate table of mortality rates is used for disabled retirees based on the Pub-2010 Public Retirement Plans Disabled Mortality tables on a fully generational basis by 80% of Scale UMP2020 to account for future mortality and with multipliers based on plan experience. The following are sample rates of the base table:

Disabled Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	PORS	
	Males	Females
50	1.6050%	1.4830%
55	2.1140%	1.7420%
60	2.5030%	1.9560%
65	3.0440%	2.2560%
70	3.9010%	2.8620%
75	5.1920%	4.0030%
80	7.3480%	6.0070%
85	10.8150%	9.3310%
90	16.2530%	13.6650%
Multiplier	100%	100%

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of the actual investment return in excess of (or less than) expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The contribution rate is set by statute for both employees and employers. The funding period is determined, as described below, using the Entry Age Normal actuarial cost method. The Entry Age Normal actuarial cost method allocates the plan's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

The calculation of the amortization period takes into account scheduled increases to contribution rates applicable to future years and payroll growth. Also, the calculation of the actuarial determined contribution rate and amortization period reflects additional contributions the System receives with respect to return to work retirees. These contributions are assumed to grow at the same payroll growth rate as for active employees. It is assumed that amortization payments are made monthly at the end of the month.

Development of the Contribution Rate and Funding Period

The calculation of the employer and member contribution rate as well as the derived funding period takes into account a couple differences in contributions paid by the various members as well as the delayed timing (if any) in the effective date of the new contribution rate. Specifically, the factors that are reflected in the calculation of the contribution rate include:

1) Member and employer contributions made on the payroll of working retirees are being used to finance the unfunded actuarial accrued liability since these members do not have a normal cost. Also, the number of working retirees is expected to decrease due to changes in working after retirement provisions enacted with the 2012 legislative changes.

2) For purposes of calculating the amortization cost and funding period, discrete pay increases and continuous interest was assumed, with amortization payments made at the end of each month.

Unused Annual Leave

To account for the effect of unused annual leave on Annual Final Compensation, liabilities for active members are increased 3.75%.

Unused Sick Leave

To account for the effect of unused sick leave on members' final credited service for Class Two members, the service of active Class Two members who retire is increased 3 months. Unused sick leave is not included in determining the credited service for Class Three Members.

Future Cost-of-living Increases

Benefits are assumed to increase 1% annually or $500 beginning on the July 1st following the receipt of 12 monthly benefit payments. The $500 limit in the annual increase is not indexed to escalate in the future years.

Payroll Growth Rate

The total annual payroll of active members (also applies to rehired retiree participants) is assumed to increase at an annual rate of 2.70%. This rate represents the underlying expected annual rate of wage inflation and does not anticipate increases in the number of members. The number rehired retirees is expected to remain constant in future years.

Other Assumptions

1. The normal cost rate is increased by 0.18% to reflect administrative expenses that are paid with plan assets.

2. Valuation payroll (used for determining the amortization contribution rate): Prior fiscal year payroll projected forward one year using the overall payroll growth rate. This was determined seperately for active employees and return to work employees by dividing the actual member contributions received during the prior fiscal year by the applicable member contribution rate and rolled-forward one year with the payroll growth assumption.

3. Individual salaries used to project benefits: Actual salaries from the past fiscal year are used to determine the final average salary as of the valuation date. For future salaries, the salary from the last fiscal year is projected forward with one year's salary scale.

4. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported salaries represent amounts paid to members during the year ended on the valuation date.

5. Percent married: 100% of male and 100% of female employees are assumed to be married.

6. Age difference: Male members are assumed to be four years older than their spouses, and female members are assumed to be four years younger than their spouses.

7. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.

8. Inactive Population: All non-vested members are assumed to take an immediate refund. Vested members are assumed to take a deferred retirement benefit.

9. There will be no recoveries once disabled.

10. No surviving spouse will remarry and there will be no children's benefit.

11. Decrement timing: Decrements of all types are assumed to occur mid-year.

12. 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.

13. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

14. 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.

15. Benefit Service: All members are assumed to accrue 1 year of eligibility service each year.

16. All calculations were performed without regard to the compensation limit in IRC Section 401(a)(17) and the benefit limit under IRC Section 415.

17. Refund of Member Contributions: Members will refund their contributions if the value of their member contributions exceeds the value of their deferred monthly retirement benefit

Participant Data

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

The data for active members included birthdate, gender, service with the current employer and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

SECTION VII

SUMMARY OF NEW ASSUMPTIONS (JSRS)

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the Retirement System for Judges and Solicitors of South Carolina.

Investment Rate of Return

Assumed annual rate of 7.00% net of investment and administrative expenses composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

Rates of salary are assumed to increase at an annual rate of 3.00%.

Active Member Decrement Rates

a. Assumed rates of service retirement are shown in the following table. In addition to the rates in the table below, all participants are assumed to retire upon reaching the mandatory retirement age of 72.

Service Based Retirement Rates		
Years of Service	Male	Female
15	20%	20%
16	20%	20%
17	20%	20%
18	20%	20%
19	20%	20%
20	50%	50%
21	15%	15%
22	15%	15%
23	15%	15%
24	15%	15%
25	10%	10%
26	10%	10%
27	10%	10%
28	10%	10%
29	10%	10%
30	10%	10%
31*	10%	10%
32+	100%	100%

*Retirement rate will be 100% at 31 years of service for solicitors.

b. An abbreviated table with the assumed rates of disability and mortality while employed is shown below. There is no active employment withdrawal assumption.

JSRS				
Age	Disability Rates		Active Mortality Rates (multiplier added)	
	Males	Females	Males	Females
25	0.0140%	0.0172%	0.0220%	0.0110%
30	0.0210%	0.0231%	0.0300%	0.0170%
35	0.0280%	0.0231%	0.0410%	0.0260%
40	0.0525%	0.0403%	0.0570%	0.0400%
45	0.0875%	0.0825%	0.0900%	0.0620%
50	0.1400%	0.1320%	0.1490%	0.0930%
55	0.2275%	0.2145%	0.2320%	0.1350%
60	0.3500%	0.3300%	0.3570%	0.2040%
64	0.4375%	0.4125%	0.5290%	0.3070%

Post Retirement Mortality

a. Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by the 80% of Scale UMP to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Nondisabled Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	JSRS	
	Males	Females
50	0.1880%	0.1926%
55	0.3176%	0.2481%
60	0.5633%	0.3393%
65	0.8580%	0.4934%
70	1.4203%	0.7992%
75	2.4918%	1.5698%
80	4.6202%	3.0941%
85	8.3587%	5.9917%
90	14.6823%	11.3214%
Multiplier	95%	94%

The life expectancies for a 65 year old retiree in future years based on the assumption with full generational projection are shown as follows:

Life Expectancy for an Age 65 Retiree In Years					
Gender	**Year of Retirement**				
	2020	**2025**	**2030**	**2035**	**2040**
Male	20.9	21.2	21.5	21.8	22.1
Female	23.8	24.1	24.3	24.6	24.8

b. A separate table of mortality rates is used for disabled retirees based on the Pub-2010 Public Retirement Plans Disabled Mortality tables on a fully generational basis by 80% of Scale UMP to account for future mortality and with multipliers based on plan experience. The following are sample rates of the base table:

Disabled Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	JSRS	
	Males	Females
50	2.0865%	1.7796%
55	2.7482%	2.0904%
60	3.2539%	2.3472%
65	3.9572%	2.7072%
70	5.0713%	3.4344%
75	6.7496%	4.8036%
80	9.5524%	7.2084%
85	14.0595%	11.1972%
90	21.1289%	16.3980%
Multiplier	130%	120%

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of the actual investment return in excess of (or less than) expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability, on an actuarial value of asset basis, with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

The calculation of the amortization period takes into account scheduled increases to contribution requirements applicable to future years and payroll growth. Also, the calculation of the amortization period reflects additional contributions the System receives with respect to members in DROP and who are retired-in-place. These contributions are assumed to grow at the same payroll growth rate as

for active employees. It is assumed that amortization payments are made monthly at the end of the month.

Note, the principle financial measurement calculations in this actuarial valuation, which include the unfunded actuarial accrued liability, funded ratio, contributions rates, and funding period, are based on an actuarial value of assets (smoothed value) basis. The actuarial value of assets is a calculated asset value which may be greater than or less than the market value of assets and is used to dampen some of the volatility in the market value of assets. As a result, many of these measures would be different if they were determined on a market value of asset basis.

Future Cost-of-living Increases

Future benefits are assumed to increase at an annual rate of 3.00%.

Payroll Growth Rate

The total annual payroll of active members (including DROP and RIP participants) is assumed to increase at an annual rate of 2.70%. This rate represents the underlying expected annual rate of wage inflation and does not anticipate increases in the number of members.

Other Assumptions

1. The normal cost rate is increased by 0.40% to account for administrative expenses that are paid with plan assets.
2. Percent married: 95% of male and female employees are assumed to be married.
2. Age difference: Males are assumed to be four years older than their spouses.
3. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.
4. Inactive Population: All non-vested members are assumed to take an immediate refund. Members with a vested benefit are assumed to elect a deferred benefit commencing at their earliest possible commencement age.
5. There will be no recoveries once disabled.
6. Decrement timing: Decrements of all types are assumed to occur mid-year.
7. 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.
8. Benefit Service: All active members are assumed to accrue one year of eligibility service each year.

Participant Data

Participant data was securely supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, service with the current employer and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date. Assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

SECTION VIII

SUMMARY OF NEW ASSUMPTIONS (GARS)

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the Retirement System for Members of the General Assembly of South Carolina.

Investment Rate of Return

Assumed annual rate of 7.00% net of investment and administrative expenses composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

No increases in salary are assumed.

Active Member Decrement Rates

a. Assumed rates of service retirement are shown in the following table. In addition to the rates in the table below, members with 30 years of service are assumed to immediately commence their retirement benefit. Special contributors are assumed to retire at the earlier of attaining age 60 or attaining 22 years of service.

Annual Age Based Retirement Rates	
Age	**Assumed Rate**
59 & Under	50%
60	20%
61 - 64	7%
65 - 69	10%
70 & Older	100%

An abbreviated table with the assumed rates of disability and mortality while employed is shown below. There is no active employment withdrawal assumption.

GARS				
Age	Disability Rates		Active Mortality Rates (multiplier applied)	
	Males	Females	Males	Females
25	0.0225%	0.0150%	0.0410%	0.0120%
30	0.0450%	0.0210%	0.0520%	0.0190%
35	0.0675%	0.0420%	0.0680%	0.0300%
40	0.1125%	0.0540%	0.0960%	0.0470%
45	0.1575%	0.0780%	0.1430%	0.0720%
50	0.2250%	0.1320%	0.2180%	0.1070%
55	0.3600%	0.2100%	0.3200%	0.1570%
60	0.4500%	0.3210%	0.4660%	0.2380%
64	0.5625%	0.4470%	0.6310%	0.3440%

Post Retirement Mortality

c. Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by the 80% of Scale UMP to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	GARS	
	Males	Females
50	0.1920%	0.2192%
55	0.3243%	0.2824%
60	0.5751%	0.3863%
65	0.8761%	0.5616%
70	1.4502%	0.9097%
75	2.5442%	1.7869%
80	4.7175%	3.5220%
85	8.5346%	6.8204%
90	14.9914%	12.8871%
Multiplier	97%	107%

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					
Gender	Year of Retirement				
	2020	2025	2030	2035	2040
Male	20.8	21.1	21.4	21.6	21.9
Female	22.8	23.1	23.4	23.6	23.9

A separate table of mortality rates is used for disabled retirees based on the Pub-2010 Public Retirement Plans Disabled Mortality tables on a fully generational basis by 80% of Scale UMP to account for future mortality and with multipliers based on plan experience. The following are sample rates of the base table:

Disabled Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	GARS	
	Males	Females
50	2.2470%	1.9279%
55	2.9596%	2.2646%
60	3.5042%	2.5428%
65	4.2616%	2.9328%
70	5.4614%	3.7206%
75	7.2688%	5.2039%
80	10.2872%	7.8091%
85	15.1410%	12.1303%
90	22.7542%	17.7645%
Multiplier	140%	130%

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of the actual investment return in excess of (or less than) expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level dollar amount necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability, on an actuarial value of asset basis, with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

Note, the principle financial measurement calculations in this actuarial valuation, which include the unfunded actuarial accrued liability, funded ratio, contributions rates, and funding period, are based on an actuarial value of assets (smoothed value) basis. The actuarial value of assets is a calculated asset value which may be greater than or less than the market value of assets and is used to dampen some of the volatility in the market value of assets. As a result, many of these measures would be different if they were determined on a market value of asset basis.

Future Cost-of-living Increases

No increases are assumed.

Payroll Growth Rate

None assumed.

Other Assumptions

1. The normal cost is increased by 0.18% to account for administrative expenses that are paid with plan assets.

2. Percent married: 100% of active members are assumed to be married.

3. Age difference: Males are assumed to be four years older than their spouses.

4. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.

5. Inactive Population: All non-vested members are assumed to take an immediate refund. Members with a vested benefit are assumed to elect a refund or a deferred benefit commencing at age 60, whichever is more valuable at the valuation date.

6. It is assumed there will be no recoveries once disabled.

7. Decrement timing: Decrements of all types are assumed to occur mid-year.

8. 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.

9. Benefit Service: All active and special contributing members are assumed to accrue one year of eligibility service each year.

Participant Data

Participant data was securely supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, service with the current employer and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date. Assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

SECTION IX

SUMMARY OF NEW ASSUMPTIONS (SCNG)

Summary Of Actuarial Assumptions and Methods

The following presents a summary of the actuarial assumptions and methods used in the valuation of the South Carolina National Guard Supplemental Retirement Plan.

Investment Rate of Return

Assumed annual rate of 7.00% net of investment and administrative expenses composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses. This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

No increases in salary are assumed. The benefit is not related to pay.

Active Member Decrement Rates

a. Assumed rates of service retirement are shown in the following table. Members who retire prior to age 60 are assumed to defer retirement benefits until age 60.

Age and Service Based Retirement Rates			
	Service		
Age	20	21 - 29	30+
Age < 60	10%	5%	100%
Age >= 60	100%	100%	100%

b. An abbreviated table with the assumed rates of disability and mortality while employed is shown below. There is no active employment withdrawal assumption.

Age	Disability Rates		Active Mortality Rates (multiplier added)	
	Males	Females	Males	Females
25	0.120%	0.120%	0.0500%	0.0260%
30	0.160%	0.160%	0.0550%	0.0360%
35	0.300%	0.300%	0.0620%	0.0490%
40	0.400%	0.400%	0.0780%	0.0660%
45	0.600%	0.600%	0.1090%	0.0900%
50	0.750%	0.750%	0.1590%	0.1230%
55	0.000%	0.000%	0.2330%	0.1670%
60	0.000%	0.000%	0.3510%	0.2270%
64	0.000%	0.000%	0.4990%	0.2900%

Post Retirement Mortality

Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by the 80% of Scale UMP to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Annuitant Mortality Rates Before Projection (Multiplier Applied)		
Age	SCNG	
	Males	Females
50	0.2513%	0.2192%
55	0.4246%	0.2824%
60	0.7530%	0.3863%
65	1.1471%	0.5616%
70	1.8988%	0.9097%
75	3.3311%	1.7869%
80	6.1765%	3.5220%
85	11.1742%	6.8204%
90	19.6279%	12.8871%
Multiplier	127%	107%

The life expectancies for a 65 year old retiree in future years based on the assumption with full generational projection are shown as follows:

Life Expectancy for an Age 65 Retiree In Years					
Gender	Year of Retirement				
	2020	2025	2030	2035	2040
Male	18.7	19.0	19.3	19.6	19.9
Female	22.8	23.1	23.4	23.6	23.9

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of the actual investment return in excess of (or less than) expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level dollar amount necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability, on an actuarial value of asset basis, with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

Note, the principle financial measurement calculations in this actuarial valuation, which include the unfunded actuarial accrued liability, funded ratio, contributions rates, and funding period, are based on an actuarial value of assets (smoothed value) basis. The actuarial value of assets is a calculated asset value which may be greater than or less than the market value of assets and is used to dampen some of the volatility in the market value of assets. As a result, many of these measures would be different if they were determined on a market value of asset basis.

Future Cost-of-Living Increases

No increases are assumed.

Payroll Growth Rate

None assumed.

Other Assumptions

1. The normal cost is increased by $15,000 to reflect administrative expenses that are paid with plan assets.

2. There is not a marriage assumption.

3. Decrement timing: Decrements of all types are assumed to occur mid-year.

4. 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.

Participant Data

Participant data was securely supplied in electronic text files. There were separate files for (i) active, and (ii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, total military service and total South Carolina National Guard service. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

SECTION X

SUMMARY OF DATA AND EXPERIENCE

List of Tables

List of Tables (Continued)

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
SALARY INCREASE EXPERIENCE

	Current Salary Scale		2013/2023 Actual Experience			Proposed Salary Scale	
Years of Service	Total	Step Rate/ Promotional	Total	Above Inflation	Step Rate/ Promotional	Total	Step Rate/ Promotional
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	9.50%	6.50%	14.32%	11.59%	10.97%	9.65%	6.65%
2	7.00%	4.00%	7.81%	5.08%	4.46%	7.15%	4.15%
3	5.25%	2.25%	6.52%	3.79%	3.17%	5.40%	2.40%
4	4.75%	1.75%	5.78%	3.06%	2.44%	4.90%	1.90%
5	4.50%	1.50%	5.66%	2.93%	2.31%	4.65%	1.65%
6	4.25%	1.25%	5.28%	2.55%	1.93%	4.40%	1.40%
7	4.25%	1.25%	5.09%	2.36%	1.74%	4.40%	1.40%
8	4.00%	1.00%	4.99%	2.26%	1.64%	4.15%	1.15%
9	4.00%	1.00%	4.79%	2.06%	1.44%	4.15%	1.15%
10	3.75%	0.75%	4.55%	1.83%	1.20%	3.90%	0.90%
11	3.75%	0.75%	4.46%	1.73%	1.11%	3.90%	0.90%
12	3.50%	0.50%	4.45%	1.73%	1.10%	3.65%	0.65%
13	3.50%	0.50%	4.45%	1.72%	1.10%	3.65%	0.65%
14	3.50%	0.50%	4.37%	1.64%	1.02%	3.65%	0.65%
15	3.50%	0.50%	4.29%	1.57%	0.94%	3.65%	0.65%
16	3.50%	0.50%	4.21%	1.48%	0.86%	3.65%	0.65%
17	3.50%	0.50%	4.18%	1.45%	0.83%	3.65%	0.65%
18	3.50%	0.50%	3.91%	1.18%	0.56%	3.65%	0.65%
19	3.25%	0.25%	3.97%	1.24%	0.62%	3.40%	0.40%
20	3.25%	0.25%	3.91%	1.18%	0.56%	3.40%	0.40%
21	3.00%	0.00%	3.88%	1.16%	0.54%	3.15%	0.15%
22	3.00%	0.00%	3.73%	1.01%	0.39%	3.15%	0.15%
23	3.00%	0.00%	3.59%	0.87%	0.24%	3.15%	0.15%
24	3.00%	0.00%	3.80%	1.07%	0.45%	3.15%	0.15%
25	3.00%	0.00%	3.71%	0.98%	0.36%	3.15%	0.15%
26	3.00%	0.00%	3.63%	0.90%	0.28%	3.15%	0.15%
27	3.00%	0.00%	3.43%	0.71%	0.09%	3.15%	0.15%
28	3.00%	0.00%	3.77%	1.05%	0.43%	3.15%	0.15%
29	3.00%	0.00%	3.87%	1.14%	0.52%	3.15%	0.15%
30+	3.00%	0.00%	3.35%	0.62%	0.00%	3.00%	0.00%

Current Inflation Assumption	2.25%	Proposed Inflation Assumption	2.25%
Current Productivity Component	0.75%	Proposed Productivity Component	0.75%
Actual CPI-U Inflation for Jul/13 - Jun/23	2.73%	Proposed Wage Inflation	3.00%
Apparent Productivity Component	0.62%		

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
SALARY INCREASE EXPERIENCE

	Current Salary Scale		2013/2023 Actual Experience			Proposed Salary Scale	
Years of Service	Total	Step Rate/ Promotional	Total	Above Inflation	Step Rate/ Promotional	Total	Step Rate/ Promotional
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	11.00%	8.00%	18.29%	15.56%	15.06%	11.25%	8.25%
2	10.75%	7.75%	9.23%	6.51%	6.00%	11.00%	8.00%
3	6.50%	3.50%	6.50%	3.77%	3.27%	6.75%	3.75%
4	5.50%	2.50%	6.24%	3.51%	3.01%	5.75%	2.75%
5	5.25%	2.25%	5.86%	3.14%	2.63%	5.50%	2.50%
6	5.00%	2.00%	5.68%	2.95%	2.45%	5.25%	2.25%
7	4.75%	1.75%	5.56%	2.83%	2.32%	5.00%	2.00%
8	4.50%	1.50%	5.32%	2.60%	2.09%	4.75%	1.75%
9	4.50%	1.50%	5.08%	2.35%	1.85%	4.75%	1.75%
10	4.25%	1.25%	5.11%	2.39%	1.88%	4.50%	1.50%
11	4.25%	1.25%	4.92%	2.19%	1.69%	4.50%	1.50%
12	4.00%	1.00%	4.60%	1.87%	1.37%	4.25%	1.25%
13	3.75%	0.75%	4.59%	1.86%	1.35%	4.00%	1.00%
14	3.75%	0.75%	4.51%	1.79%	1.28%	4.00%	1.00%
15	3.50%	0.50%	4.16%	1.44%	0.93%	3.75%	0.75%
16	3.50%	0.50%	4.18%	1.45%	0.95%	3.75%	0.75%
17	3.25%	0.25%	4.05%	1.33%	0.82%	3.50%	0.50%
18	3.25%	0.25%	3.90%	1.17%	0.67%	3.50%	0.50%
19	3.25%	0.25%	3.77%	1.04%	0.54%	3.50%	0.50%
20	3.25%	0.25%	3.60%	0.88%	0.37%	3.50%	0.50%
21	3.00%	0.00%	3.51%	0.79%	0.28%	3.25%	0.25%
22	3.00%	0.00%	3.56%	0.83%	0.33%	3.25%	0.25%
23	3.00%	0.00%	3.32%	0.59%	0.08%	3.25%	0.25%
24	3.00%	0.00%	3.29%	0.57%	0.06%	3.25%	0.25%
25	3.00%	0.00%	3.24%	0.51%	0.01%	3.25%	0.25%
26	3.00%	0.00%	3.00%	0.27%	-0.23%	3.25%	0.25%
27	3.00%	0.00%	3.71%	0.98%	0.48%	3.25%	0.25%
28	3.00%	0.00%	3.73%	1.01%	0.50%	3.25%	0.25%
29	3.00%	0.00%	3.45%	0.73%	0.22%	3.25%	0.25%
30+	3.00%	0.00%	3.23%	0.50%	0.00%	3.00%	0.00%

Current Inflation Assumption	2.25%
Current Productivity Component	0.75%
Actual CPI-U Inflation for Jul/13 - Jun/23	2.73%
Apparent Productivity Component	0.50%

Proposed Inflation Assumption	2.25%
Proposed Productivity Component	0.75%
Proposed Wage Inflation	3.00%

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
SALARY INCREASE EXPERIENCE

	Current Salary Scale		2013/2023 Actual Experience			Proposed Salary Scale	
Years of Service	Total	Step Rate/ Promotional	Total	Above Inflation	Step Rate/ Promotional	Total	Step Rate/ Promotional
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	10.50%	7.00%	22.51%	19.79%	18.47%	11.00%	7.50%
2	9.50%	6.00%	8.97%	6.24%	4.92%	10.00%	6.50%
3	6.75%	3.25%	7.44%	4.72%	3.40%	7.25%	3.75%
4	5.25%	1.75%	7.24%	4.51%	3.19%	5.75%	2.25%
5	5.00%	1.50%	6.85%	4.12%	2.80%	5.50%	2.00%
6	4.75%	1.25%	6.61%	3.88%	2.56%	5.25%	1.75%
7	4.75%	1.25%	6.51%	3.79%	2.47%	5.25%	1.75%
8	4.50%	1.00%	6.20%	3.48%	2.16%	5.00%	1.50%
9	4.50%	1.00%	6.04%	3.31%	1.99%	5.00%	1.50%
10	4.25%	0.75%	6.11%	3.38%	2.06%	4.75%	1.25%
11	4.25%	0.75%	5.94%	3.21%	1.89%	4.75%	1.25%
12	4.25%	0.75%	6.04%	3.32%	1.99%	4.75%	1.25%
13	4.25%	0.75%	5.92%	3.19%	1.87%	4.75%	1.25%
14	4.00%	0.50%	5.55%	2.82%	1.50%	4.50%	1.00%
15	3.75%	0.25%	5.76%	3.04%	1.72%	4.25%	0.75%
16	3.75%	0.25%	5.49%	2.76%	1.44%	4.25%	0.75%
17	3.75%	0.25%	5.50%	2.78%	1.46%	4.25%	0.75%
18	3.75%	0.25%	5.30%	2.58%	1.26%	4.25%	0.75%
19	3.75%	0.25%	5.24%	2.51%	1.19%	4.25%	0.75%
20	3.75%	0.25%	5.23%	2.50%	1.18%	4.25%	0.75%
21	3.75%	0.25%	5.12%	2.39%	1.07%	4.25%	0.75%
22	3.50%	0.00%	4.84%	2.11%	0.79%	4.00%	0.50%
23	3.50%	0.00%	5.11%	2.39%	1.06%	4.00%	0.50%
24	3.50%	0.00%	4.79%	2.06%	0.74%	4.00%	0.50%
25	3.50%	0.00%	4.92%	2.19%	0.87%	4.00%	0.50%
26	3.50%	0.00%	4.91%	2.19%	0.87%	4.00%	0.50%
27	3.50%	0.00%	5.05%	2.33%	1.01%	4.00%	0.50%
28	3.50%	0.00%	4.72%	1.99%	0.67%	4.00%	0.50%
29	3.50%	0.00%	4.77%	2.05%	0.73%	4.00%	0.50%
30+	3.50%	0.00%	4.05%	1.32%	0.00%	3.50%	0.00%

Current Inflation Assumption	2.25%
Current Productivity Component	1.25%
Actual CPI-U Inflation for Jul/13 - Jun/23	2.73%
Apparent Productivity Component	1.32%

Proposed Inflation Assumption	2.25%
Proposed Productivity Component	1.25%
Proposed Wage Inflation	3.50%

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 48,865	$ 8,475,806	0.0058	0.41%	0.41%	$ 34,446	$ 34,649	142%	141%
60-64	111,996	13,210,874	0.0085	0.67%	0.68%	88,698	89,213	126%	126%
65-69	212,551	17,831,487	0.0119	1.09%	1.09%	193,543	194,435	110%	109%
70-74	274,758	14,893,844	0.0184	1.81%	1.81%	268,968	269,891	102%	102%
75-79	283,744	8,417,274	0.0337	3.30%	3.31%	277,871	278,502	102%	102%
80-84	239,475	4,001,383	0.0598	6.14%	6.14%	245,793	245,833	97%	97%
85-89	166,627	1,535,939	0.1085	10.84%	10.81%	166,556	166,021	100%	100%
90-94	78,031	396,303	0.1969	18.13%	18.02%	71,841	71,426	109%	109%
95-99	22,793	66,571	0.3424	28.85%	28.66%	19,205	19,079	119%	119%
Totals	$ 1,438,841	$ 68,829,481				$ 1,366,920	$ 1,369,049	105%	105%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 33,857	$ 7,767,954	0.0044	0.32%	0.32%	$ 25,371	$ 25,511	133%	133%
60-64	77,516	14,503,899	0.0053	0.43%	0.43%	64,893	65,241	119%	119%
65-69	138,616	18,432,162	0.0075	0.67%	0.68%	126,541	127,108	110%	109%
70-74	155,637	12,858,416	0.0121	1.20%	1.20%	151,952	152,467	102%	102%
75-79	152,499	6,339,760	0.0241	2.34%	2.35%	146,035	146,372	104%	104%
80-84	125,150	2,666,318	0.0469	4.64%	4.64%	121,825	121,844	103%	103%
85-89	100,380	1,015,633	0.0988	9.26%	9.23%	88,752	88,477	113%	113%
90-94	53,736	330,656	0.1625	16.10%	16.01%	50,813	50,529	106%	106%
95-99	15,973	64,966	0.2459	26.02%	25.85%	15,764	15,658	101%	102%
Totals	$ 853,364	$ 63,979,766				$ 791,945	$ 793,208	108%	108%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - MALE

Age	Actual Deaths	Total Exposures	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 16,327	$ 2,572,123	0.0063	0.40%	0.40%	$ 10,237	$ 10,296	159%	159%
60-64	1,702	329,871	0.0063	0.66%	0.66%	30,078	30,252	96%	95%
65-69	5,240	463,953	0.0116	1.06%	1.07%	68,829	69,147	109%	108%
70-74	5,962	333,367	0.0188	1.77%	1.77%	95,780	96,105	106%	106%
75-79	6,246	191,369	0.0308	3.23%	3.24%	90,682	90,889	95%	95%
80-84	7,613	118,501	0.0634	6.02%	6.02%	73,549	73,560	105%	105%
85-89	6,477	62,932	0.1022	10.62%	10.59%	52,218	52,050	96%	97%
90-94	4,000	23,080	0.1984	17.75%	17.65%	24,693	24,550	112%	112%
95-99	41	64	0.3376	28.25%	28.07%	6,037	5,997	119%	120%
Totals	$ 53,609	$ 4,095,260				$ 452,103	$ 452,847	104%	104%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - FEMALE

Age	Actual Deaths	Total Exposures	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 28,604	$ 11,895,334	0.0024	0.28%	0.28%	$ 34,120	$ 34,308	84%	83%
60-64	98,152	21,857,784	0.0045	0.38%	0.38%	85,862	86,330	114%	114%
65-69	176,661	27,492,145	0.0064	0.59%	0.59%	165,981	166,717	106%	106%
70-74	221,061	19,395,127	0.0114	1.05%	1.06%	200,827	201,515	110%	110%
75-79	187,953	8,937,374	0.0210	2.06%	2.06%	180,475	180,890	104%	104%
80-84	162,853	3,917,029	0.0416	4.08%	4.08%	158,509	158,526	103%	103%
85-89	153,896	1,884,408	0.0817	8.13%	8.11%	146,675	146,213	105%	105%
90-94	104,344	719,691	0.1450	14.14%	14.06%	97,953	97,403	107%	107%
95-99	40,461	161,125	0.2511	22.86%	22.71%	34,633	34,401	117%	118%
Total	$ 1,173,985	$ 96,260,018				$ 1,105,035	$ 1,106,302	106%	106%

($ in thousands of benefit)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
POST-RETIREMENT MORTALITY EXPERIENCE - MALE

Age	Actual Deaths	Total Exposures	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 26,612	$ 5,233,737	0.0051	0.53%	0.54%	$ 27,849	$ 28,011	96%	95%
60-64	40,996	5,223,473	0.0078	0.88%	0.88%	45,920	46,186	89%	89%
65-69	69,270	4,606,297	0.0150	1.42%	1.43%	65,460	65,760	106%	105%
70-74	74,582	3,012,426	0.0248	2.36%	2.37%	71,229	71,470	105%	104%
75-79	64,509	1,370,019	0.0471	4.32%	4.33%	59,215	59,349	109%	109%
80-84	44,033	570,739	0.0772	8.04%	8.04%	45,902	45,909	96%	96%
85-89	26,877	181,013	0.1485	14.20%	14.15%	25,700	25,617	105%	105%
90-94	9,128	34,863	0.2618	23.73%	23.60%	8,274	8,227	110%	111%
95-99	1,181	3,172	0.3724	37.77%	37.52%	1,198	1,190	99%	99%
Total	$ 357,187	$ 20,235,739				$ 350,746	$ 351,719	102%	102%

($ in thousands of benefit)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
POST-RETIREMENT MORTALITY EXPERIENCE - FEMALE

Age	Actual Deaths	Total Exposures	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55-59	$ 5,706	$ 1,270,259	0.0045	0.32%	0.32%	$ 4,118	$ 4,141	139%	138%
60-64	10,636	1,473,671	0.0072	0.43%	0.43%	6,508	6,543	163%	163%
65-69	12,642	1,192,364	0.0106	0.67%	0.68%	8,088	8,125	156%	156%
70-74	10,561	660,486	0.0160	1.20%	1.20%	7,753	7,779	136%	136%
75-79	9,054	272,188	0.0333	2.34%	2.35%	6,228	6,242	145%	145%
80-84	5,048	84,869	0.0595	4.64%	4.64%	3,784	3,786	133%	133%
85-89	1,682	19,942	0.0843	9.26%	9.23%	1,662	1,657	101%	101%
90-94	470	2,530	0.1857	16.10%	16.01%	386	383	122%	123%
95-99	194	674	0.2882	26.02%	25.85%	165	164	118%	118%
Totals	$ 55,992	$ 4,976,983				$ 38,692	$ 38,820	145%	144%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED MALE

Age	Actual Deaths	Total Exposures	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	$ 6,360	$ 646,464	0.0098	0.0160	0.0157	$ 10,363	$ 10,131	61%	63%
50-54	14,695	921,649	0.0159	0.0239	0.0233	21,999	21,506	67%	68%
55-59	24,781	1,042,493	0.0238	0.0299	0.0293	31,205	30,508	79%	81%
60-64	36,373	1,107,196	0.0329	0.0351	0.0344	38,914	38,043	93%	96%
65-69	41,264	966,847	0.0427	0.0440	0.0432	42,561	41,799	97%	99%
70-74	32,128	548,483	0.0586	0.0570	0.0563	31,280	30,859	103%	104%
75-79	21,287	235,379	0.0904	0.0777	0.0770	18,297	18,132	116%	117%
80-84	9,940	91,920	0.1081	0.1124	0.1124	10,336	10,329	96%	96%
85-89	3,851	24,211	0.1591	0.1658	0.1680	4,014	4,066	96%	95%
90-94	1,604	7,526	0.2131	0.2527	0.2586	1,902	1,947	84%	82%
95-99	279	913	0.3059	0.3588	0.3683	328	336	85%	83%
Totals	$ 192,563	$ 5,593,081				$ 211,198	$ 207,657	91%	93%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	$ 4,813	$ 305,547	0.0158	0.0142	0.0139	$ 4,449	$ 4,350	108%	111%
50-54	13,364	592,156	0.0226	0.0193	0.0189	11,555	11,296	116%	118%
55-59	19,951	928,839	0.0215	0.0223	0.0218	20,808	20,342	96%	98%
60-64	28,254	1,194,808	0.0236	0.0250	0.0244	30,006	29,351	94%	96%
65-69	28,318	1,109,090	0.0255	0.0299	0.0293	33,177	32,582	85%	87%
70-74	28,271	699,626	0.0404	0.0395	0.0390	27,392	27,016	103%	105%
75-79	17,996	317,749	0.0566	0.0570	0.0565	17,745	17,579	101%	102%
80-84	9,597	119,271	0.0805	0.0872	0.0871	10,144	10,134	95%	95%
85-89	6,593	44,928	0.1467	0.1345	0.1363	5,866	5,938	112%	111%
90-94	2,400	10,100	0.2377	0.1918	0.1963	1,876	1,918	128%	125%
95-99	507	2,216	0.2287	0.2777	0.2851	590	606	86%	84%
Totals	$ 160,063	$ 5,324,331				$ 163,606	$ 161,112	98%	99%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	$ 1,266	$ 44,147	0.0287	0.0149	0.0146	$ 657	$ 642	193%	197%
50-54	2,964	99,152	0.0299	0.0222	0.0217	2,198	2,148	135%	138%
55-59	5,899	160,169	0.0368	0.0278	0.0272	4,452	4,352	133%	136%
60-64	8,790	243,056	0.0362	0.0326	0.0319	7,932	7,755	111%	113%
65-69	12,274	254,217	0.0483	0.0409	0.0401	10,391	10,205	118%	120%
70-74	8,961	176,171	0.0509	0.0530	0.0522	9,329	9,204	96%	97%
75-79	6,930	89,548	0.0774	0.0722	0.0715	6,464	6,406	107%	108%
80-84	3,268	26,548	0.1231	0.1044	0.1043	2,772	2,770	118%	118%
85-89	1,355	9,246	0.1465	0.1540	0.1560	1,424	1,442	95%	94%
90-94	738	2,008	0.3677	0.2347	0.2402	471	482	157%	153%
95-99	-	67	0.0000	0.3331	0.3420	22	23	0%	0%
Totals	$ 52,445	$ 1,104,329				$ 46,113	$ 45,430	114%	115%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	$ 5,746	$ 204,298	0.0281	0.0131	0.0128	$ 2,753	$ 2,691	209%	214%
50-54	11,082	399,155	0.0278	0.0179	0.0175	7,191	7,030	154%	158%
55-59	13,649	729,118	0.0187	0.0206	0.0202	15,091	14,753	90%	93%
60-64	21,458	1,073,399	0.0200	0.0231	0.0226	24,929	24,386	86%	88%
65-69	28,376	1,155,296	0.0246	0.0276	0.0271	31,964	31,392	89%	90%
70-74	27,844	819,408	0.0340	0.0364	0.0360	29,665	29,259	94%	95%
75-79	15,486	351,686	0.0440	0.0526	0.0522	18,116	17,947	85%	86%
80-84	11,083	120,490	0.0920	0.0805	0.0804	9,402	9,391	118%	118%
85-89	5,562	40,625	0.1369	0.1242	0.1258	4,908	4,969	113%	112%
90-94	2,095	12,523	0.1673	0.1771	0.1812	2,165	2,214	97%	95%
95-99	975	2,524	0.3863	0.2563	0.2632	606	623	161%	157%
Totals	$ 143,356	$ 4,908,520				$ 146,790	$ 144,655	98%	99%

($ in thousands of benefit)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	$ 9,000	$ 781,798	0.0115	0.0115	0.0112	$ 8,952	$ 8,751	101%	103%
50-54	12,484	978,605	0.0128	0.0170	0.0167	16,684	16,310	75%	77%
55-59	8,021	841,311	0.0095	0.0214	0.0209	17,988	17,586	45%	46%
60-64	10,340	557,298	0.0186	0.0251	0.0245	13,990	13,678	74%	76%
65-69	9,557	351,470	0.0272	0.0314	0.0309	11,051	10,853	86%	88%
70-74	9,882	189,317	0.0522	0.0407	0.0402	7,712	7,608	128%	130%
75-79	3,711	64,466	0.0576	0.0555	0.0550	3,579	3,547	104%	105%
80-84	2,887	21,795	0.1325	0.0803	0.0803	1,751	1,749	165%	165%
85-89	1,040	8,061	0.1290	0.1184	0.1200	955	967	109%	108%
90-94	513	2,208	0.2323	0.1805	0.1847	399	408	129%	126%
95-99	24	24	1.0000	0.2563	0.2631	6	6	390%	380%
Totals	$ 67,459	$ 3,796,353	0.0178			$ 83,067	$ 81,465	81%	83%

($ in thousands of benefit)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
POST-RETIREMENT MORTALITY EXPERIENCE - DISABLED FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45-49	1,411	225,040	0.0063	1.09%	1.07%	2,499	2,444	56%	58%
50-54	3,079	263,563	0.0117	1.49%	1.46%	3,929	3,841	78%	80%
55-59	3,252	274,774	0.0118	1.72%	1.68%	4,709	4,603	69%	71%
60-64	2,372	189,888	0.0125	1.92%	1.88%	3,643	3,564	65%	67%
65-69	2,293	86,858	0.0264	2.30%	2.26%	1,973	1,937	116%	118%
70-74	1,408	31,197	0.0451	3.04%	3.00%	931	918	151%	153%
75-79	19	7,544	0.0025	4.39%	4.35%	316	313	6%	6%
80-84	129	1,152	0.1118	6.71%	6.70%	72	72	178%	178%
85-89	0	291	0.0000	10.35%	10.48%	29	29	0%	0%
90-94	0	149	0.0000	14.76%	15.10%	21	22	0%	0%
95-99	0	0	N\A	21.36%	21.93%	0	0	0%	0%
Totals	13,962	1,080,456				18,123	17,743	77%	79%

($ in thousands of benefit)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
ACTIVE MORTALITY EXPERIENCE - MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	32	32,871	0.0010	0.04%	0.04%	14	12	224%	261%
25-29	59	62,003	0.0010	0.04%	0.04%	26	27	225%	218%
30-34	58	67,747	0.0009	0.05%	0.06%	37	38	159%	152%
35-39	58	66,601	0.0009	0.07%	0.08%	48	51	120%	114%
40-44	73	67,624	0.0011	0.10%	0.11%	71	76	103%	96%
45-49	125	71,964	0.0017	0.16%	0.17%	114	122	110%	102%
50-54	172	66,290	0.0026	0.24%	0.25%	157	168	110%	103%
55-59	226	59,149	0.0038	0.34%	0.37%	204	217	111%	104%
60-64	238	44,991	0.0053	0.50%	0.54%	223	239	107%	100%
65-69	144	20,348	0.0071	0.74%	0.80%	147	158	98%	91%
70-74	93	7,891	0.0118	1.13%	1.24%	87	95	107%	98%
Totals	1,278	567,479				1,130	1,205	113%	106%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
ACTIVE MORTALITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	10	24,619	0.0004	0.01%	0.01%	3	3	294%	374%
25-29	23	71,011	0.0003	0.01%	0.02%	11	11	216%	200%
30-34	26	83,639	0.0003	0.02%	0.02%	20	21	129%	124%
35-39	53	84,795	0.0006	0.04%	0.04%	32	34	167%	158%
40-44	58	84,958	0.0007	0.06%	0.06%	50	52	116%	112%
45-49	94	90,872	0.0010	0.09%	0.09%	81	83	115%	114%
50-54	140	92,699	0.0015	0.13%	0.13%	122	124	115%	113%
55-59	190	86,185	0.0022	0.19%	0.20%	168	173	113%	110%
60-64	203	62,597	0.0032	0.30%	0.32%	185	195	110%	104%
65-69	89	21,955	0.0041	0.49%	0.52%	102	109	87%	81%
70-74	31	5,756	0.0054	0.81%	0.87%	45	48	69%	65%
Totals	917	709,086				820	852	112%	108%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
ACTIVE MORTALITY EXPERIENCE - MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	1	3,429	0.0003	0.03%	0.03%	1	1	101%	121%
25-29	9	14,092	0.0006	0.02%	0.02%	3	3	267%	278%
30-34	7	17,717	0.0004	0.03%	0.03%	6	6	120%	126%
35-39	8	19,177	0.0004	0.04%	0.04%	9	8	93%	98%
40-44	19	20,186	0.0009	0.07%	0.06%	13	13	143%	150%
45-49	41	21,685	0.0019	0.11%	0.10%	23	22	176%	185%
50-54	53	21,228	0.0025	0.17%	0.17%	37	35	144%	151%
55-59	70	18,259	0.0038	0.26%	0.25%	48	46	145%	152%
60-64	70	13,979	0.0050	0.42%	0.40%	58	55	121%	127%
65-69	48	6,122	0.0078	0.69%	0.66%	41	39	117%	123%
70-74	31	2,297	0.0135	1.10%	1.05%	24	23	127%	132%
Totals	357	158,171				264	251	135%	142%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
ACTIVE MORTALITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	0	10,610	0.0000	0.01%	0.01%	1	1	0%	0%
25-29	10	50,105	0.0002	0.01%	0.01%	6	7	173%	149%
30-34	22	61,822	0.0004	0.02%	0.02%	11	13	199%	174%
35-39	27	71,388	0.0004	0.03%	0.03%	19	22	141%	122%
40-44	63	84,572	0.0007	0.04%	0.05%	35	41	180%	155%
45-49	81	96,640	0.0008	0.06%	0.07%	62	71	131%	115%
50-54	112	93,355	0.0012	0.09%	0.11%	88	100	128%	112%
55-59	141	78,064	0.0018	0.14%	0.16%	107	123	131%	115%
60-64	157	53,641	0.0029	0.22%	0.25%	113	133	138%	118%
65-69	63	16,748	0.0038	0.37%	0.44%	59	70	107%	89%
70-74	31	4,181	0.0074	0.69%	0.83%	27	33	113%	93%
Totals	707	621,126				529	614	134%	115%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
ACTIVE MORTALITY EXPERIENCE - MALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	8	10,434	0.0008	0.04%	0.04%	4	5	196%	173%
25-29	24	28,035	0.0009	0.04%	0.05%	11	13	219%	179%
30-34	35	29,945	0.0012	0.04%	0.05%	13	16	272%	222%
35-39	14	26,641	0.0005	0.05%	0.06%	14	16	103%	85%
40-44	26	25,370	0.0010	0.07%	0.08%	17	21	153%	125%
45-49	33	24,524	0.0013	0.10%	0.12%	23	28	141%	116%
50-54	27	17,466	0.0015	0.14%	0.17%	24	29	112%	92%
55-59	31	9,863	0.0031	0.21%	0.25%	20	24	155%	127%
60-64	26	4,966	0.0052	0.32%	0.38%	15	19	171%	140%
65-69	8	1,744	0.0046	0.53%	0.64%	9	11	91%	74%
70-74	6	122	0.0492	0.98%	1.21%	1	1	517%	421%
0	0	0	0.0000	1.84%	2.27%	1	0	0%	0%
Totals	238	179,110				152	184	157%	129%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
ACTIVE MORTALITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Deaths		Actual/Expected	
Age	Actual Deaths	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-24	3	2,996	0.0010	0.02%	0.02%	1	1	549%	466%
25-29	4	9,587	0.0004	0.02%	0.03%	2	3	185%	151%
30-34	4	9,461	0.0004	0.03%	0.04%	3	4	141%	114%
35-39	9	8,307	0.0011	0.04%	0.05%	3	4	266%	214%
40-44	7	7,844	0.0009	0.06%	0.07%	4	5	160%	129%
45-49	11	8,063	0.0014	0.08%	0.09%	6	8	180%	145%
50-54	16	7,110	0.0023	0.10%	0.13%	7	9	219%	177%
55-59	15	5,220	0.0029	0.14%	0.17%	7	9	208%	167%
60-64	11	2,823	0.0039	0.19%	0.24%	5	7	210%	169%
65-69	1	770	0.0013	0.30%	0.37%	2	3	46%	37%
70-74	2	28	0.0714	0.60%	0.75%	0	0	1209%	967%
0	0	0	0.0000	0.00%	0.00%	0	0	0%	0%
Totals	83	62,209				42	51	200%	161%

(Exposures, actual, and expected deaths are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
DISABILITY EXPERIENCE - MALE

				Assumed Rate		Expected Disabilities		Actual/Expected	
Age	Actual Disabilities	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	0	0	N/A	0.03%	0.02%	0	0	0%	0%
20-24	0	3	0.0000	0.03%	0.02%	0	0	0%	0%
25-29	0	726	0.0000	0.05%	0.03%	0	0	0%	0%
30-34	0	4,249	0.0000	0.08%	0.05%	3	2	0%	0%
35-39	0	8,322	0.0000	0.13%	0.09%	11	7	0%	0%
40-44	13	10,569	0.0012	0.20%	0.13%	21	14	62%	93%
45-49	13	12,817	0.0010	0.28%	0.18%	36	24	36%	54%
50-54	34	14,771	0.0023	0.42%	0.28%	62	41	55%	83%
55-59	50	14,691	0.0034	0.60%	0.40%	88	58	57%	86%
60-64	46	12,406	0.0037	0.77%	0.51%	95	62	48%	74%
Total	156	78,554				316	208	49%	75%

(Exposures, actual, and expected disabilities are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
DISABILITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Disabilities		Actual/Expected	
Age	Actual Disabilities	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	0	0	N/A	0.03%	0.02%	0	0	0%	0%
20-24	0	0	N/A	0.03%	0.02%	0	0	0%	0%
25-29	0	366	0.0000	0.03%	0.02%	0	0	0%	0%
30-34	1	5,659	0.0002	0.06%	0.03%	3	2	31%	50%
35-39	4	12,624	0.0003	0.09%	0.05%	11	6	35%	67%
40-44	8	16,594	0.0005	0.12%	0.06%	20	11	39%	73%
45-49	18	19,556	0.0009	0.19%	0.10%	38	20	48%	90%
50-54	35	23,382	0.0015	0.32%	0.16%	74	38	47%	92%
55-59	66	23,937	0.0028	0.49%	0.25%	118	61	56%	108%
60-64	42	19,295	0.0022	0.74%	0.38%	143	73	29%	58%
Total	174	121,413				408	211	43%	82%

(Exposures, actual, and expected disabilities are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
DISABILITY EXPERIENCE - MALE

				Assumed Rate		Expected Disabilities		Actual/Expected	
Age	Actual Disabilities	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	0	0	N/A	0.02%	0.01%	0	0	0%	0%
20-24	0	0	N/A	0.02%	0.01%	0	0	0%	0%
25-29	0	147	0.0000	0.02%	0.02%	0	0	0%	0%
30-34	0	2,868	0.0000	0.03%	0.02%	1	1	0%	0%
35-39	3	5,162	0.0006	0.04%	0.04%	2	2	135%	150%
40-44	4	6,181	0.0006	0.08%	0.07%	5	4	85%	100%
45-49	6	6,802	0.0009	0.12%	0.11%	8	7	71%	86%
50-54	13	7,063	0.0018	0.20%	0.18%	14	12	92%	108%
55-59	15	5,707	0.0026	0.32%	0.28%	18	16	83%	94%
60-64	14	4,492	0.0031	0.45%	0.39%	20	17	69%	82%
Total	55	38,422				69	59	80%	93%

(Exposures, actual, and expected disabilities are based on headcounts.)

*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
DISABILITY EXPERIENCE - FEMALE

				Assumed Rate		Expected Disabilities		Actual/Expected	
Age	Actual Disabilities	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	0	0	N/A	0.01%	0.01%	0	0	0%	0%
20-24	0	1	0.0000	0.01%	0.01%	0	0	0%	0%
25-29	0	333	0.0000	0.02%	0.02%	0	0	0%	0%
30-34	1	11,239	0.0001	0.02%	0.02%	3	3	36%	33%
35-39	8	19,048	0.0004	0.03%	0.03%	6	6	136%	133%
40-44	9	23,656	0.0004	0.06%	0.06%	14	14	63%	64%
45-49	31	30,454	0.0010	0.11%	0.10%	33	32	94%	97%
50-54	40	32,935	0.0012	0.18%	0.17%	58	54	69%	74%
55-59	85	27,112	0.0031	0.28%	0.26%	75	70	113%	121%
60-64	54	19,679	0.0027	0.39%	0.37%	77	72	70%	75%
Total	228	164,457				266	251	86%	91%

(Exposures, actual, and expected disabilities are based on headcounts.)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
DISABILITY EXPERIENCE - MALE AND FEMALE COMBINED

				Assumed Rate		Expected Disabilities		Actual/Expected	
Age	Actual Disabilities	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	0	81	0.0000	0.15%	0.10%	0	0	0%	0%
20-24	0	5,988	0.0000	0.16%	0.11%	10	7	0%	0%
25-29	4	16,310	0.0002	0.20%	0.14%	32	22	13%	18%
30-34	20	17,993	0.0011	0.32%	0.22%	56	39	36%	51%
35-39	36	15,884	0.0023	0.49%	0.34%	78	54	46%	67%
40-44	53	14,026	0.0038	0.70%	0.48%	97	67	55%	79%
45-49	91	14,061	0.0065	0.96%	0.66%	135	93	67%	98%
50-54	77	11,785	0.0065	1.38%	0.95%	161	111	48%	69%
Total	281	96,128				569	393	49%	72%

(Exposures, actual, and expected disabilities are based on headcounts.)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
TERMINATION EXPERIENCE - SERVICE-BASED - MALE AND FEMALE

				Assumed Rate		Expected Terminations		Actual/Expected	
Service	Actual Terminations	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0	$ 6,175	$ 25,528	0.2419	24.28%	23.00%	$ 6,197	$ 5,871	100%	105%
1	5,686	32,633	0.1742	20.32%	17.00%	6,630	5,548	86%	102%
2	4,963	33,721	0.1472	14.16%	14.00%	4,775	4,721	104%	105%
3	4,116	33,895	0.1214	11.15%	11.11%	3,781	3,767	109%	109%
4	3,469	32,249	0.1076	9.58%	10.23%	3,089	3,298	112%	105%
5	3,279	33,285	0.0985	8.79%	9.41%	2,925	3,133	112%	105%
6	2,925	33,869	0.0864	8.00%	8.66%	2,709	2,934	108%	100%
7	2,751	32,575	0.0844	7.00%	7.97%	2,280	2,597	121%	106%
8	2,646	32,975	0.0802	6.00%	7.34%	1,979	2,420	134%	109%
9	2,337	33,564	0.0696	5.50%	6.75%	1,846	2,267	127%	103%
10	2,156	33,658	0.0640	5.00%	6.22%	1,683	2,092	128%	103%
11	2,000	33,643	0.0594	2.98%	5.72%	1,001	1,925	200%	104%
12	1,875	34,543	0.0543	2.72%	5.27%	939	1,819	200%	103%
13	1,827	35,819	0.0510	2.52%	4.85%	904	1,736	202%	105%
14	1,650	36,545	0.0452	2.44%	4.46%	893	1,630	185%	101%
15	1,645	36,308	0.0453	2.33%	4.10%	845	1,490	195%	110%
16	1,476	35,569	0.0415	2.16%	3.78%	767	1,344	192%	110%
17	1,247	35,293	0.0353	1.87%	3.48%	660	1,227	189%	102%
18	1,204	35,371	0.0340	1.64%	3.20%	580	1,132	208%	106%
19	1,149	35,364	0.0325	1.45%	2.94%	514	1,041	224%	110%
20	1,000	35,385	0.0283	1.32%	2.71%	466	959	215%	104%
21	876	35,167	0.0249	1.22%	2.49%	430	877	204%	100%
22	795	34,778	0.0229	1.16%	2.30%	403	798	197%	100%
23	745	34,282	0.0217	1.09%	2.11%	375	724	199%	103%
24	501	23,675	0.0212	1.32%	1.94%	312	460	161%	109%
25	429	22,628	0.0190	1.01%	1.79%	229	405	187%	106%
26	360	21,044	0.0171	0.95%	1.65%	199	347	181%	104%
Total	$ 59,283	$ 883,365				$ 47,411	$ 56,563	125%	105%

($ in thousands of salary)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
TERMINATION EXPERIENCE - SERVICE-BASED - MALE AND FEMALE

				Assumed Rate		Expected Terminations		Actual/Expected	
Service	Actual Terminations	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0	$ 2,968	$ 19,682	0.1508	23.54%	14.00%	$ 4,633	$ 2,756	64%	108%
1	2,891	23,603	0.1225	14.68%	12.00%	3,465	2,832	83%	102%
2	2,589	24,077	0.1075	11.23%	10.00%	2,704	2,408	96%	108%
3	2,248	24,478	0.0918	9.23%	8.75%	2,259	2,142	99%	105%
4	2,189	25,104	0.0872	7.84%	7.96%	1,969	1,998	111%	110%
5	2,058	26,344	0.0781	7.22%	7.24%	1,903	1,906	108%	108%
6	1,935	27,318	0.0708	6.22%	6.58%	1,699	1,798	114%	108%
7	1,812	28,321	0.0640	5.61%	5.98%	1,588	1,695	114%	107%
8	1,653	29,373	0.0563	5.00%	5.44%	1,469	1,599	113%	103%
9	1,533	30,308	0.0506	4.60%	4.95%	1,395	1,500	110%	102%
10	1,451	31,123	0.0466	2.67%	4.50%	830	1,401	175%	104%
11	1,337	31,762	0.0421	2.40%	4.09%	762	1,300	175%	103%
12	1,283	33,786	0.0380	2.15%	3.72%	726	1,257	177%	102%
13	1,328	36,514	0.0364	1.99%	3.38%	727	1,236	183%	107%
14	1,218	38,266	0.0318	1.83%	3.08%	702	1,178	174%	103%
15	1,159	39,085	0.0297	1.69%	2.80%	661	1,094	175%	106%
16	1,033	39,614	0.0261	1.56%	2.55%	617	1,008	167%	102%
17	1,082	40,120	0.0270	1.41%	2.31%	567	929	191%	117%
18	872	40,795	0.0214	1.28%	2.10%	522	859	167%	102%
19	776	41,790	0.0186	1.16%	1.91%	483	800	161%	97%
20	747	42,512	0.0176	1.08%	1.74%	457	740	163%	101%
21	724	42,424	0.0171	0.98%	1.58%	416	671	174%	108%
22	599	42,294	0.0142	0.92%	1.44%	390	609	154%	98%
23	484	36,144	0.0134	0.89%	1.31%	322	473	151%	102%
24	373	30,620	0.0122	0.84%	1.19%	257	364	145%	102%
25	381	28,550	0.0134	0.82%	1.08%	233	309	164%	123%
26	114	8,735	0.0130	0.80%	0.98%	70	86	163%	132%
Total	$ 36,838	$ 862,740				$ 31,825	$ 34,947	116%	105%

($ in thousands of salary)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
TERMINATION EXPERIENCE - SERVICE-BASED - MALE AND FEMALE COMBINED

				Assumed Rate		Expected Terminations		Actual/Expected	
Service	Actual Terminations	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	$ 2,401	$ 9,828	0.2443	25.00%	25.00%	$ 2,457	$ 2,457	98%	98%
2	1,997	11,379	0.1755	18.00%	18.00%	2,048	2,048	98%	98%
3	1,750	11,804	0.1482	14.00%	14.00%	1,653	1,653	106%	106%
4	1,554	12,102	0.1284	12.00%	12.00%	1,452	1,452	107%	107%
5	1,358	12,267	0.1107	10.70%	10.70%	1,313	1,313	103%	103%
6	1,308	12,700	0.1030	9.54%	10.02%	1,212	1,272	108%	103%
7	1,211	13,092	0.0925	8.50%	8.93%	1,113	1,168	109%	104%
8	1,123	12,750	0.0881	7.58%	7.96%	966	1,015	116%	111%
9	990	12,832	0.0772	6.75%	7.09%	866	909	114%	109%
10	871	12,861	0.0677	6.02%	6.32%	774	813	112%	107%
11	892	13,103	0.0681	5.37%	5.91%	704	774	127%	115%
12	843	13,511	0.0624	4.78%	5.26%	646	710	130%	119%
13	723	13,715	0.0527	4.26%	4.69%	584	643	124%	112%
14	681	14,011	0.0486	3.80%	4.18%	532	586	128%	116%
15	618	14,360	0.0431	3.39%	3.73%	487	535	127%	116%
16	538	14,112	0.0381	3.02%	3.62%	426	511	126%	105%
17	461	13,984	0.0330	2.69%	3.23%	376	451	123%	102%
18	426	13,824	0.0308	2.40%	2.88%	332	398	128%	107%
19	375	14,124	0.0266	2.14%	2.57%	302	363	124%	103%
20	355	14,488	0.0245	1.91%	2.29%	277	332	128%	107%
21	305	14,181	0.0215	1.70%	2.21%	241	313	127%	97%
22	370	14,161	0.0261	1.51%	1.96%	214	278	173%	133%
23	252	13,566	0.0186	1.35%	1.76%	183	238	138%	106%
24	199	7,415	0.0269	1.20%	1.56%	89	116	224%	172%
Total	$ 21,601	$ 310,169				$ 19,247	$ 20,348	112%	106%

($ are in thousands of salary)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
UNREDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
65	$ 382	$ 1,488	0.2564	35.00%	25.00%	$ 521	$ 372	73%	103%
66	1,615	5,122	0.3153	22.72%	30.00%	1,164	1,537	139%	105%
67	1,050	3,663	0.2868	22.59%	30.00%	827	1,099	127%	96%
68	697	2,767	0.2518	20.00%	25.00%	553	692	126%	101%
69	470	2,116	0.2219	20.00%	25.00%	423	529	111%	89%
70	425	1,606	0.2646	20.00%	25.00%	321	402	132%	106%
71	279	1,100	0.2537	20.00%	25.00%	220	275	127%	101%
72	184	829	0.2225	20.00%	25.00%	166	207	111%	89%
73	167	642	0.2597	20.00%	25.00%	128	161	130%	104%
74	128	500	0.2563	20.00%	25.00%	100	125	128%	102%
Subtotal	$ 5,397	$ 19,833				$ 4,424	$ 5,399	122%	100%

($ in thousands of liability)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)

GENERAL EMPLOYEES

UNREDUCED RETIREMENT EXPERIENCE - SERVICE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
28	$ 3,531	$ 13,809	0.2557	17.86%	27.00%	$ 2,466	$ 3,728	143%	95%
29	2,298	12,131	0.1895	17.95%	20.00%	2,177	2,426	106%	95%
30	1,791	11,036	0.1623	10.00%	14.00%	1,104	1,545	162%	116%
31	1,402	9,753	0.1438	10.00%	14.00%	975	1,365	144%	103%
32	1,178	8,981	0.1312	10.00%	14.00%	898	1,257	131%	94%
33	961	7,337	0.1309	15.58%	14.00%	1,143	1,027	84%	94%
34	767	5,874	0.1306	15.37%	14.00%	903	822	85%	93%
35	720	4,540	0.1586	15.26%	14.00%	693	636	104%	113%
36	425	3,309	0.1283	20.00%	14.00%	662	463	64%	92%
37	399	2,739	0.1458	20.01%	14.00%	548	383	73%	104%
38	285	2,058	0.1386	20.02%	14.00%	412	288	69%	99%
39	214	1,385	0.1543	20.00%	14.00%	277	194	77%	110%
40	195	1,018	0.1919	100.00%	20.00%	1,018	204	19%	96%
41	130	769	0.1697	100.00%	20.00%	769	154	17%	85%
42	95	632	0.1497	100.00%	20.00%	632	126	15%	75%
43	122	566	0.2161	100.00%	20.00%	566	113	22%	108%
44	81	414	0.1948	100.00%	20.00%	414	83	19%	97%
45	36	224	0.1615	100.00%	25.00%	224	56	16%	65%
46	28	162	0.1742	100.00%	25.00%	162	41	17%	69%
47	13	143	0.0928	100.00%	25.00%	143	36	9%	37%
48	37	120	0.3112	100.00%	25.00%	120	30	31%	124%
49	19	116	0.1652	100.00%	25.00%	116	29	17%	66%
Subtotal	$ 625,117	$ 3,788,934				$ 507,514	$ 495,202	123%	126%

($ in thousands of liability)

*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
UNREDUCED RETIREMENT EXPERIENCE - ELIGIBLE FOR RTW - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
62	$ 1,481	$ 5,473	0.2707	35.00%	30.00%	$ 1,915	$ 1,642	77%	90%
63	287	709	0.4043	35.00%	30.00%	248	213	116%	135%
64	140	507	0.2760	35.00%	30.00%	178	152	79%	92%
65	1,683	5,258	0.3202	35.00%	30.00%	1,840	1,577	91%	107%
Totals	$ 3,592	$ 11,948				$ 4,182	$ 3,584	86%	100%

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
UNREDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
65	$ 150	$ 637	0.2350	35.00%	25.00%	$ 223	$ 159	67%	94%
66	995	2,386	0.4169	28.91%	30.00%	690	716	144%	139%
67	488	1,443	0.3379	28.82%	30.00%	416	433	117%	113%
68	294	958	0.3067	28.70%	25.00%	275	239	107%	123%
69	190	683	0.2775	20.00%	25.00%	137	171	139%	111%
70	154	521	0.2955	20.00%	25.00%	104	130	148%	118%
71	87	394	0.2217	20.00%	25.00%	79	99	111%	89%
72	52	306	0.1690	20.00%	25.00%	61	76	84%	68%
73	58	247	0.2337	20.00%	25.00%	49	62	117%	93%
74	35	164	0.2150	20.00%	25.00%	33	41	108%	86%
Totals	$ 2,501	$ 7,739				$ 2,067	$ 2,126	121%	118%

($ in thousands of liability)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
UNREDUCED RETIREMENT EXPERIENCE - SERVICE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
28	$ 6,118	$ 16,745	0.3653	15.00%	35.00%	$ 2,512	$ 5,861	244%	104%
29	2,667	11,660	0.2288	12.55%	24.00%	1,463	2,798	182%	95%
30	2,356	9,444	0.2495	11.63%	24.00%	1,098	2,266	215%	104%
31	1,860	7,642	0.2433	11.62%	24.00%	888	1,834	209%	101%
32	1,466	5,917	0.2478	11.63%	24.00%	688	1,420	213%	103%
33	992	4,354	0.2278	11.57%	24.00%	504	1,045	197%	95%
34	687	3,100	0.2215	11.58%	24.00%	359	744	191%	92%
35	442	2,309	0.1915	11.61%	24.00%	268	554	165%	80%
36	261	1,463	0.1786	14.01%	24.00%	205	351	127%	74%
37	219	988	0.2213	14.28%	24.00%	141	237	155%	92%
38	152	651	0.2329	14.29%	24.00%	93	156	163%	97%
39	83	317	0.2620	14.50%	24.00%	46	76	181%	109%
40	41	231	0.1780	100.00%	30.00%	231	69	18%	60%
41	60	279	0.2162	100.00%	30.00%	279	84	22%	72%
42	47	209	0.2250	100.00%	30.00%	209	63	22%	74%
43	30	168	0.1767	100.00%	30.00%	168	50	18%	59%
44	47	93	0.5107	100.00%	30.00%	93	28	51%	170%
45	31	64	0.4815	100.00%	50.00%	64	32	48%	96%
46	0	45	0.0000	100.00%	50.00%	45	22	0%	0%
47	15	26	0.5525	100.00%	50.00%	26	13	56%	112%
48	5	12	0.4519	100.00%	50.00%	12	6	45%	91%
49	0	7	0.0000	100.00%	50.00%	7	3	0%	0%
Subtotal	$ 17,578	$ 65,724				$ 9,399	$ 17,712	187%	371%

($ in thousands of liability)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
UNREDUCED RETIREMENT EXPERIENCE - ELIGIBLE FOR RTW - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
62	$ 1,116	$ 2,708	0.4123	35.00%	40.00%	$ 948	$ 1,083	118%	103%
63	161	340	0.4732	35.00%	40.00%	119	136	135%	118%
64	138	249	0.5537	35.00%	40.00%	87	100	158%	138%
65	1,137	2,981	0.3814	35.00%	40.00%	1,043	1,192	109%	95%
Totals	$ 2,552	$ 6,277				$ 2,197	$ 2,511	116%	102%

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
UNREDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	$ 489	$ 2,316	0.2113	20.00%	20.00%	$ 463	$ 463	106%	106%
56	304	2,037	0.1491	20.00%	20.00%	407	407	75%	75%
57	49	470	0.1052	20.00%	20.00%	94	94	53%	53%
58	282	1,586	0.1779	12.00%	12.00%	190	190	148%	148%
59	203	1,496	0.1358	12.00%	12.00%	179	179	113%	113%
60	245	1,373	0.1787	12.00%	12.00%	165	165	149%	149%
61	209	1,180	0.1770	25.00%	25.00%	295	295	71%	71%
62	306	1,072	0.2858	25.00%	25.00%	268	268	114%	114%
63	185	771	0.2406	25.00%	25.00%	193	193	96%	96%
64	137	616	0.2217	25.00%	25.00%	154	154	89%	89%
65	127	540	0.2349	25.00%	25.00%	135	135	94%	94%
66	133	445	0.2997	25.00%	25.00%	111	111	120%	120%
67	90	339	0.2653	25.00%	25.00%	85	85	106%	106%
68	79	272	0.2920	25.00%	25.00%	68	68	117%	117%
69	43	206	0.2100	25.00%	25.00%	52	52	84%	83%
Totals	$ 473	$ 1,802				$ 450	$ 451	105%	105%

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
UNREDUCED RETIREMENT EXPERIENCE - SERVICE BASED - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
25	$ 1,920	$ 6,401	0.3000	30.00%	30.00%	$ 1,920	$ 1,920	100%	100%
26	966	4,432	0.2180	14.00%	20.00%	620	886	156%	109%
27	653	3,709	0.1761	14.00%	18.00%	519	668	126%	98%
28	552	3,042	0.1814	14.00%	18.00%	426	547	130%	101%
29	423	2,433	0.1737	14.00%	18.00%	341	438	124%	96%
30	310	2,187	0.1418	14.00%	18.00%	306	394	101%	79%
31	320	1,709	0.1871	14.00%	18.00%	239	308	134%	104%
32	240	1,337	0.1796	14.00%	18.00%	187	241	128%	100%
33	211	971	0.2171	14.00%	21.00%	136	204	155%	103%
34	166	642	0.2589	14.00%	21.00%	90	135	185%	123%
35	91	505	0.1796	14.00%	21.00%	71	106	128%	86%
36	93	449	0.2069	14.00%	21.00%	63	94	148%	99%
37	52	310	0.1671	14.00%	21.00%	43	65	119%	80%
38	38	229	0.1647	14.00%	21.00%	32	48	118%	79%
39	21	167	0.1233	14.00%	21.00%	23	35	88%	59%
40	33	136	0.2416	100.00%	21.00%	136	29	24%	113%
41	23	118	0.1973	100.00%	21.00%	118	25	20%	93%
42	24	167	0.1449	100.00%	21.00%	167	35	14%	69%
43	27	123	0.2182	100.00%	21.00%	123	26	22%	103%
44	34	106	0.3200	100.00%	21.00%	106	22	32%	155%
45	10	68	0.1537	100.00%	100.00%	68	68	15%	15%
46	0	11	0.0000	100.00%	100.00%	11	11	0%	0%
Total	$ 6,207	$ 29,253				$ 5,747	$ 6,305	108%	98%

($ in thousands of liability)
*Columns may not add due to rounding.

POLICE OFFICERS RETIREMENT SYSTEM (PORS)
UNREDUCED RETIREMENT EXPERIENCE - ELIGIBLE FOR RTW - MALE AND FEMALE

				Assumed Rate		Expected Retirements		Actual/Expected	
Service	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
57	$ 799	$ 2,686	0.2976	14.00%	30.00%	$ 376	$ 806	213%	99%

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
GENERAL EMPLOYEES
REDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE LESS THAN 25 YEARS OF SERVICE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
60	$ 476	$ 8,809	0.0540	8.19%	5.00%	$ 721	$ 440	66%	108%
61	403	8,147	0.0495	8.17%	5.00%	666	407	61%	99%
62	1,195	7,691	0.1554	15.00%	15.00%	1,154	1,154	104%	104%
63	845	6,587	0.1283	15.00%	15.00%	988	988	86%	86%
64	769	5,750	0.1338	15.00%	15.00%	862	862	89%	89%
Totals	$ 3,689	$ 36,983				$ 4,391	$ 3,852	84%	96%

($ in thousands of liability)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)

GENERAL EMPLOYEES

REDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE AT LEAST 25 YEARS OF SERVICE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	$ 207	$ 2,716	0.0763	8.21%	7.00%	$ 223	$ 190	93%	109%
56	176	2,559	0.0689	8.30%	7.00%	212	179	83%	98%
57	174	2,520	0.0691	8.27%	7.00%	208	176	84%	99%
58	148	2,507	0.0592	8.25%	7.00%	207	175	72%	85%
59	156	2,260	0.0689	8.18%	7.00%	185	158	84%	98%
60	187	2,322	0.0805	8.16%	7.00%	190	163	99%	115%
61	142	2,215	0.0639	8.18%	7.00%	181	155	78%	91%
62	347	2,153	0.1610	15.00%	17.00%	323	366	107%	95%
63	295	1,743	0.1690	15.00%	17.00%	262	296	113%	99%
64	216	1,441	0.1501	15.00%	17.00%	216	245	100%	88%
Total	$ 2,048	$ 22,437				$ 2,207	$ 2,104	93%	97%

($ in thousands of liability)

*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
REDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE LESS THAN 25 YEARS OF SERVICE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
60	$ 576	$ 6,132	0.0939	10.74%	10.00%	$ 659	$ 613	87%	94%
61	560	5,307	0.1056	10.83%	10.00%	575	531	97%	106%
62	961	4,809	0.1998	20.00%	15.00%	962	721	100%	133%
63	585	3,951	0.1482	20.00%	15.00%	790	593	74%	99%
64	360	3,350	0.1075	20.00%	15.00%	670	502	54%	72%
Totals	$ 3,043	$ 23,549				$ 3,655	$ 2,960	83%	103%

($ in thousands of liability)
*Columns may not add due to rounding.

SOUTH CAROLINA RETIREMENT SYSTEM (SCRS)
PUBLIC SCHOOL EMPLOYEES
REDUCED RETIREMENT EXPERIENCE - AGE BASED - MALE AND FEMALE AT LEAST 25 YEARS OF SERVICE

				Assumed Rate		Expected Retirements		Actual/Expected	
Age	Actual Retirements	Total Exposures	Actual Rate	Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	$ 124	$ 2,572	0.0482	10.79%	5.00%	$ 278	$ 129	45%	96%
56	147	2,250	0.0654	10.72%	6.00%	241	135	61%	109%
57	143	2,081	0.0688	10.73%	7.00%	223	146	64%	98%
58	160	2,074	0.0769	10.63%	8.00%	221	166	72%	96%
59	163	1,911	0.0855	10.69%	9.00%	204	172	80%	95%
60	254	1,938	0.1311	10.66%	15.00%	207	291	123%	87%
61	249	1,804	0.1379	10.59%	15.00%	191	271	130%	92%
62	289	1,485	0.1949	20.00%	20.00%	297	297	97%	97%
63	208	1,197	0.1740	20.00%	20.00%	239	239	87%	87%
64	196	975	0.2014	20.00%	20.00%	195	195	101%	101%
Total	$ 1,934	$ 18,288				$ 2,296	$ 2,040	84%	95%

($ in thousands of liability)
*Columns may not add due to rounding.