



Death Benefit Plans of North Carolina

Principal Results of Actuarial Valuation as of December 31, 2021

October 27, 2022, Board of Trustees Meeting

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Valuation results

Summary of results

Inputs

Membership Data
Asset Data
Benefit Provisions
Assumptions
Funding Methodology



Results

Actuarial Value of Assets
Actuarial Accrued Liability
Net Actuarial Gain or Loss
Funded Ratio
Employer Contributions
Benefit Enhancement
Additional Disclosures
Projections

| Valuation Year | 12/31/2021 | 12/31/2020 |
|--|------------------|------------------|
| Teachers' and State Employees' Retirement System Death Benefit Plan | | |
| Liabilities | \$ 155,295,645 | \$ 161,030,193 |
| Current Assets | 64,524,003 | 64,613,302 |
| Present Value of Future Contributions | 211,183,344 | 209,616,804 |
| Surplus / (Deficit) | 120,411,702 | 113,199,913 |
| Local Governmental Employees' Retirement System Death Benefit Plan | | |
| Liabilities | \$ 52,971,028 | \$ 53,469,194 |
| Current Assets | 92,070,698 | 96,572,606 |
| Present Value of Future Contributions | 40,562,904 | 40,511,754 |
| Surplus / (Deficit) | 79,662,574 | 83,615,166 |
| Separate Insurance Benefits Plan for Law Enforcement Officers | | |
| Liabilities | \$ 48,737,447 | \$ 47,259,735 |
| Current Assets | 62,143,945 | 64,324,534 |
| Present Value of Future Contributions | 0 | 0 |
| Surplus / (Deficit) | 13,406,498 | 17,064,799 |
| Retirees' Contributory Death Benefit Plan | | |
| Liabilities | \$ 1,476,063,839 | \$ 1,481,794,308 |
| Current Assets | 285,680,133 | 296,209,705 |
| Present Value of Future Contributions | 1,012,701,736 | 1,052,703,904 |
| Surplus / (Deficit) | (177,681,970) | (132,880,699) |

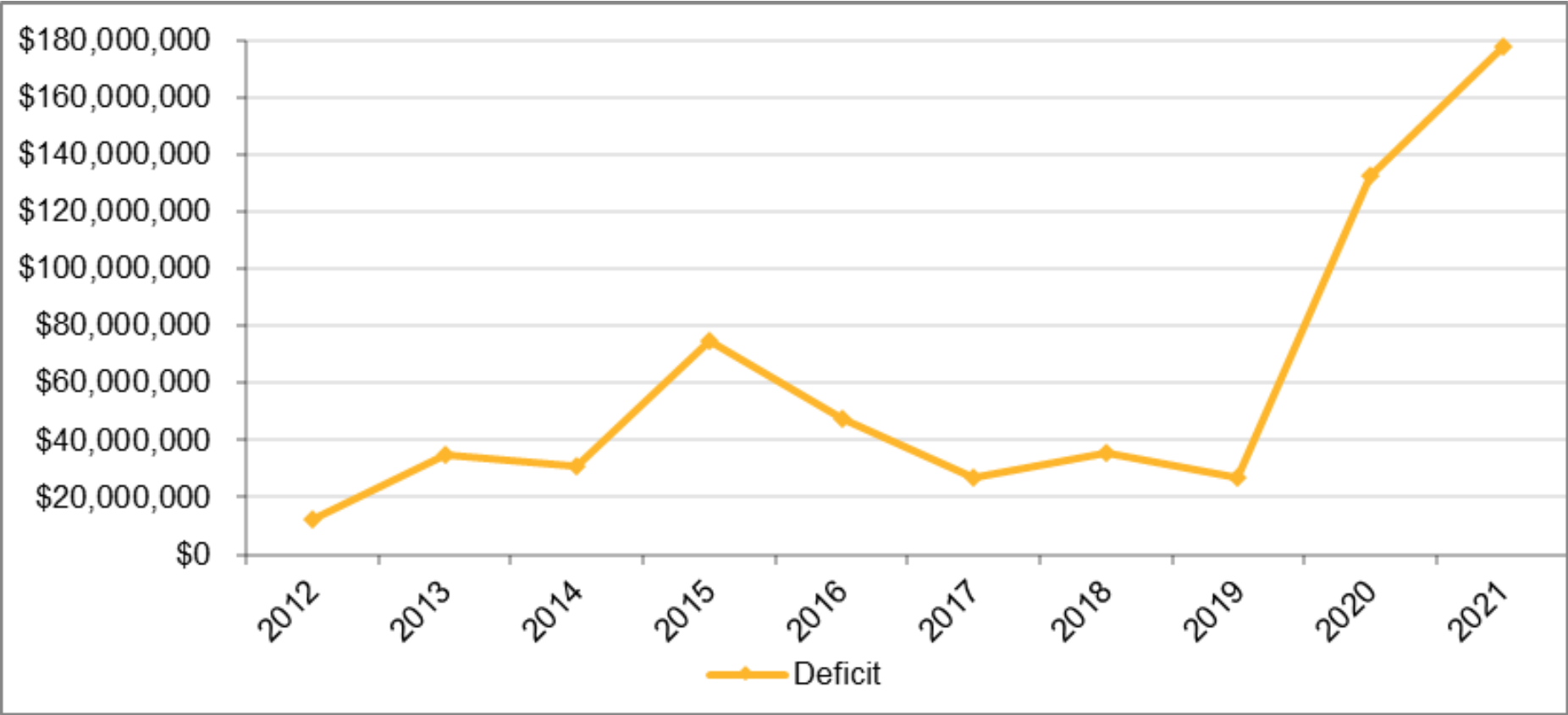
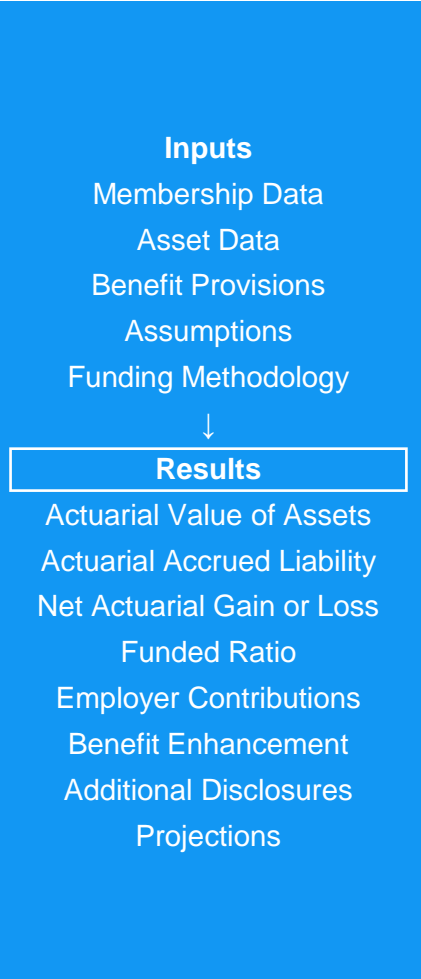
The deficit for the Retirees' Contributory Death Benefit Plan increased from last year primarily due to valuation programming modifications and differences in methodology implemented as a result of the transition from the prior actuarial firm to Buck. The net impact of the overall transition changes increased the deficit by approximately \$30.6M, measured as of December 31, 2020.

The current assets and contribution rates of the Retirees' Contributory Death Benefit Plan are not adequate. The plan provisions and/or contribution rates should be changed to reverse this projected shortfall.

As of December 31, 2021, all other death benefit plans continue to have a surplus.

Retirees' Contributory Death Benefit Plan

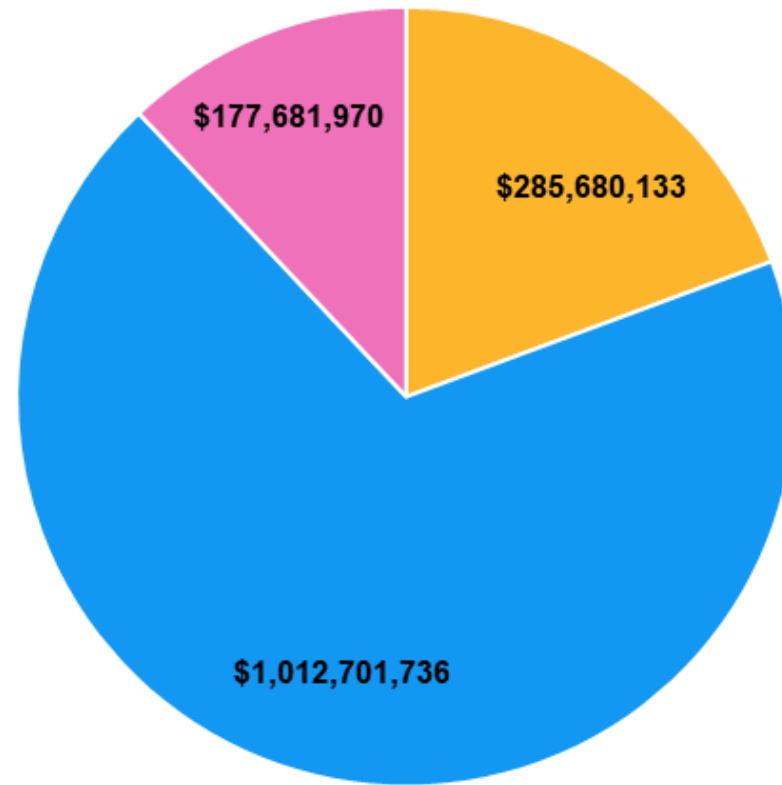
Asset Deficits



Level of deficit is dependent on the expected rate of return, which is 3.00%.

Sources of Retirees' Contributory Death Benefit Plan

Present Value of Future Benefits of \$1,476,063,839 as of December 31, 2021



■ Current Assets ■ Present Value of Future Contributions ■ Deficit

Comments on Retirees' Contributory Death Benefit Plan

- \$177.7 million dollar gap between assets and liabilities
- Thirteen (13) years of consecutive deficits
- In April 2016, Board approved changes
 - Increase in premiums for members who retire March 1, 2017 or later
 - Decrease in interest rate paid on return of contributions to 1.20% for those who die prior to 24 months of coverage
- Additional changes to plan provisions or contribution rates are needed to address the deficit.
- In January 2022, the Boards directed staff to work with the consulting actuary on a study of available alternatives.

ASOP 27/35 disclosures

ASOPs 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. In the case of the plan sponsor's selection of expected investment return, the signing actuaries have used economic information and tools provided by Buck's Financial Risk Management ("FRM") practice. A spreadsheet tool created by the FRM team converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions ("CMA") that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation and the percentiles generated by the spreadsheet described above, the actuary believes the expected investment return, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

ASOP 56 disclosure

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the Plan using data and assumptions as of the measurement date under the accounting rules specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable accounting rules to the liabilities derived and other inputs, such as Plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other accounting outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. The review is performed by experts within the company who are familiar with applicable accounting rules as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked and reviewed by multiple experts within the company who are familiar with the details of the required changes.

Certification

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections or required disclosure information. Results for plan years from December 31, 2017, to December 31, 2020 are based on valuations performed by the prior actuarial firm.

We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Michael A. Ribble, FSA, EA, MAAA, FCA

Elizabeth A. Wiley, FSA, EA, MAAA, FCA





Death Benefit Plans of North Carolina

Report on the Actuarial Valuation
Prepared as of December 31, 2021

October 2022



110 West Berry Street
Suite 1300
Fort Wayne, IN 46802

October 14, 2022

Trustees of the Teachers' and State Employees' Retirement System and the Local Governmental Employees' Retirement System
3200 Atlantic Avenue
Raleigh, NC 27604

Members of the Boards:

This report presents the results of a valuation of the Death Benefit Plans for members of the Teachers' and State Employees' Retirement System of North Carolina (TSERS) and the North Carolina Local Governmental Employees' Retirement System (LGERS), the Separate Insurance Benefits Plan for Law Enforcement Officers, and the Retirees' Contributory Death Benefit Plan prepared as of December 31, 2021. Information contained in our report for the prior plan year is based upon valuations performed by the prior actuary.

The 2013 Appropriations Act amended G.S. 143-166.60 to allow the assets of the Separate Insurance Benefits Plan for Law Enforcement Officers to be used to pay employer health insurance contributions and contribution rates of law enforcement officers (defined in G.S. 135-1(11c)) employed by the State and former law enforcement officers receiving a retirement allowance from TSERS, and requires these payments for fiscal years ending June 30, 2014, and June 30, 2015. The payments were made during 2014 and 2015 in the amount of approximately \$16.5 million per year. To the extent further payments are made, the results and conclusions in this report with respect to the Separate Insurance Benefits Plan for Law Enforcement Officers should not be relied upon.

The primary purpose of the valuation report is to determine the required member and employer contribution rates, to describe the current financial condition of the Retirement System, and to analyze changes in the Retirement System's condition. In addition, the report provides information that the Office of the State Controller (OSC) requires for its Annual Comprehensive Financial Report and it summarizes census data. Use of this report for any other purposes or by anyone other than OSC and its auditors, or North Carolina Retirement Systems Division and Department of State Treasurer Staff may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. Because of the risk of misinterpretation of actuarial results, you should ask Buck Global, LLC (Buck) to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without prior review.

The valuation is based upon membership data and financial information as furnished by the Retirement Systems Division and the Financial Operations Division and as summarized in this report. Although we reviewed for reasonableness and consistency with the prior valuation, these elements have not been audited by Buck and we cannot certify as to the accuracy and completeness of the data supplied. The valuation is also based on benefit and contribution provisions as presented in this report. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial report prior to relying on this information.

The valuation is further based on the actuarial valuation assumptions, approved by the Board of Trustees, as presented in this report. We believe that these assumptions are reasonable and comply with the Actuarial Standards of Practice (“ASOPs”) 27 and 35. We prepared this valuation in accordance with all applicable ASOPs.

The assumptions used for the December 31, 2021 actuarial valuation are based on the experience study prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021. The economic assumptions with respect to investment yield, salary increase, and inflation have been based upon a review of the existing portfolio structure as well as recent and anticipated experience. All assumptions represent an estimate of future experience.

ASOPs 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary’s determination that the assumptions selected by the plan sponsor do not significantly conflict with what, in the actuary’s professional judgment, are reasonable for the purpose of the measurement. In the case of the Board’s selection of the investment return assumption, the signing actuaries have used economic information and tools provided by Buck’s Financial Risk Management (“FRM”) practice. A spreadsheet tool created by the FRM team converts averages, standard deviations, and correlations from Buck’s Capital Markets Assumptions (“CMA”) that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for the investment return assumption without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuaries’ analysis, including consistency with other assumptions used in the valuation, the percentiles generated by the spreadsheet described above and review of actuarial gain/loss experience, the actuaries believe the assumptions, in the actuaries’ professional judgment, are reasonable for the purpose of the measurement.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented may be appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities. In various places in the report the results also show funded ratios and unfunded liabilities based upon varying sets of assumptions as well as market values of assets as that is required for certain disclosure information required per accounting rules or statutes. Where this has been done it has been clearly indicated.

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. In addition to the spreadsheet model discussed above, Buck uses third-party software in the performance of annual actuarial valuations and projections. The

model is intended to calculate the liabilities associated with the provisions of the Plan using data and assumptions as of the measurement date under the accounting rules specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable accounting rules to the liabilities derived and other inputs, such as Plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other accounting outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. The review is performed by experts within the company who are familiar with applicable accounting rules as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked and reviewed by multiple experts within the company who are familiar with the details of the required changes.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following fund experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law. Such changes in law may include additional costs resulting from future legislated benefit improvements or cost-of-living pension increases or supplements, which are not anticipated in the actuarial valuation. Because of limited scope, Buck performed no analysis of the potential range of such future differences, except for some limited analysis in the financial projections or required disclosure information of limited scope, Buck performed no analysis of the potential range of such future differences.

This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. We are Fellows of the Society of Actuaries, Enrolled Actuaries, Members of the American Academy of Actuaries, and Fellows of the Conference of Consulting Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. We are available to discuss this report with you at your convenience.

Respectfully submitted,

Buck Global, LLC (Buck)



Michael A. Ribble, FSA, EA, MAAA, FCA
Principal, Retirement Actuary



Elizabeth A. Wiley, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary

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Section 1: Introduction

The Death Benefit Plan with respect to members covered under the TSERS became effective as of July 1, 1979, under G.S. 135-5(l). The Trustees of the Death Benefit Plan subsequently permitted the participation of members of the LGERS in the Plan under G.S. 128-27(l). Previously, death benefits were provided directly from the member's respective retirement system. The Separate Insurance Benefits Plan for Law Enforcement Officers became effective January 1, 1986 under G.S. 143-166.60. The Retirees' Contributory Death Benefit Plan became effective July 1, 1988 under G.S. 120-4.27 for retired members of the LRS, under G.S. 128-27(l2) for retired members of the LGERS, under G.S. 135-5(l) for retired members of the TSERS and under G.S. 135-64(g) for retired members of the CJRS.

This report presents the results of a valuation of the Plans prepared as of December 31, 2021. The principal results of the valuation and a comparison with the preceding year's results are summarized below.

Table 1: Summary of Principal Results

| Valuation Year | 12/31/2021 | 12/31/2020 |
|--|------------------|------------------|
| Teachers' and State Employees' Retirement System Death Benefit Plan | | |
| Liabilities | \$ 155,295,645 | \$ 161,030,193 |
| Current Assets | 64,524,003 | 64,613,302 |
| Present Value of Future Contributions | 211,183,344 | 209,616,804 |
| Surplus / (Deficit) | 120,411,702 | 113,199,913 |
| Local Governmental Employees' Retirement System Death Benefit Plan | | |
| Liabilities | \$ 52,971,028 | \$ 53,469,194 |
| Current Assets | 92,070,698 | 96,572,606 |
| Present Value of Future Contributions | 40,562,904 | 40,511,754 |
| Surplus / (Deficit) | 79,662,574 | 83,615,166 |
| Separate Insurance Benefits Plan for Law Enforcement Officers | | |
| Liabilities | \$ 48,737,447 | \$ 47,259,735 |
| Current Assets | 62,143,945 | 64,324,534 |
| Present Value of Future Contributions | 0 | 0 |
| Surplus / (Deficit) | 13,406,498 | 17,064,799 |
| Retirees' Contributory Death Benefit Plan | | |
| Liabilities | \$ 1,476,063,839 | \$ 1,481,794,308 |
| Current Assets | 285,680,133 | 296,209,705 |
| Present Value of Future Contributions | 1,012,701,736 | 1,052,703,904 |
| Surplus / (Deficit) | (177,681,970) | (132,880,699) |

Section 2: Membership Data

The tables below provide a summary of the membership data used in the valuation of the Teachers' and State Employees' Retirement System (TSERS) Death Benefit Plan and the Retirees' Contributory Death Benefit Plan.

Table 2: Active Member Data for TSERS Death Benefit Plan

| | Member Count | Average Age | Average Service | Reported Compensation |
|--------------------------|--------------|-------------|-----------------|-----------------------|
| Classroom Teachers | 150,044 | 43.78 | 10.82 | \$ 7,522,554,491 |
| Other Education | 47,042 | 49.69 | 11.52 | 2,115,983,524 |
| General Employees | 97,782 | 47.09 | 10.90 | 5,350,596,556 |
| Law Enforcement Officers | 5,442 | 40.43 | 11.85 | 323,090,012 |
| Total | 300,310 | 45.72 | 10.97 | \$ 15,312,224,584 |

In addition, the valuation of the active legislator death benefit, payable by the TSERS Death Benefit Plan, is based on 170 actives with average age of 59.01 years and an average service of 6.79 years.

**Table 3: Disabled Member Data for TSERS Death Benefit Plan
(Receiving Benefits from the Disability Income Plan of North Carolina)**

| | Member Count | Average Age | Average Service | Valuation Compensation |
|--------------------------|--------------|-------------|-----------------|------------------------|
| Classroom Teachers | 1,671 | 55.93 | 14.11 | \$ 64,197,778 |
| Other Education | 671 | 57.21 | 13.56 | 18,993,860 |
| General Employees | 2,594 | 56.15 | 13.10 | 94,923,829 |
| Law Enforcement Officers | 25 | 49.17 | 16.13 | 1,787,309 |
| Total | 4,961 | 56.18 | 13.52 | \$ 179,902,776 |

The table above includes members not in receipt of benefits who did not have reported compensation in 2021 and who were reported as disabled in the current or prior valuations and not subsequently reported as returned to work.

The table below provides a summary of the membership data used in the valuations of the Local Governmental Employees' Retirement System (LGERS) Death Benefit Plan and the Retirees' Contributory Death Benefit Plan.

Table 4: Active Member Data for LGERS Death Benefit Plan

| | Member Count | Average Age | Average Service | Reported Compensation |
|--------------------------|--------------|-------------|-----------------|-----------------------|
| General Employees | 77,067 | 45.62 | 9.59 | \$ 3,762,488,019 |
| Firefighters | 10,655 | 37.43 | 9.46 | 577,170,389 |
| Law Enforcement Officers | 21,125 | 39.03 | 11.33 | 1,241,309,208 |
| Total | 108,847 | 43.54 | 9.91 | \$ 5,580,967,616 |

The table above includes employees of employers who have death benefit coverage. The number of employers in the LGERS death benefit plan as of December 31, 2021, is 558 (compared to 557 as of December 31, 2020).

Section 2: Membership Data (continued)

The table below provides a summary of the membership data used in the valuations of the Retirees' Contributory Death Benefit Plan.

Table 5: Data for Retirees' Contributory Death Benefit Plan

| | Member Count | Average Age |
|--|--------------|-------------|
| Retired members currently covered under death benefit plan | 132,444 | 70.66 |
| Terminated members eligible to elect coverage under death benefit plan at retirement | 82,252 | 48.79 |
| Active members eligible to elect coverage under death benefit plan at retirement | 438,245 | 45.29 |
| Total | 652,941 | 50.87 |

The tables below provide a summary of the membership data used in the valuation of the Separate Insurance Benefits Plan for Law Enforcement Officers.

Table 6: Active Member Data for Separate Insurance Benefits Plan

| | Member Count | Average Age | Average Service | Reported Compensation |
|-----------------------|--------------|-------------|-----------------|-----------------------|
| State Law Enforcement | 5,467 | 40.47 | 11.87 | \$ 323,090,926 |
| Local Law Enforcement | 21,125 | 39.03 | 11.33 | 1,241,309,208 |
| Total | 26,592 | 39.33 | 11.44 | \$ 1,564,400,134 |

The table above includes State Law Enforcement members not in receipt of benefits who did not have reported compensation in 2021 and who were reported as disabled in the current or prior valuations and not subsequently reported as returned to work.

Section 2: Membership Data (continued)

Table 7a: Data for Inactive Members Not in Receipt of Benefits in Separate Insurance Benefits Plan

| | Member Count | Average Age |
|-----------------------|---------------------|--------------------|
| State Law Enforcement | 33 | 50.61 |
| Local Law Enforcement | <u>146</u> | <u>51.06</u> |
| Total | 179 | 50.98 |

Table 7b: Data for Inactive Members in Receipt of Benefits in Separate Insurance Benefits Plan

| | Member Count | Average Age |
|-----------------------|---------------------|--------------------|
| State Law Enforcement | 3,111 | 65.58 |
| Local Law Enforcement | <u>9,188</u> | <u>63.06</u> |
| Total | 12,299 | 63.70 |

The tables above includes all former members in TSERS and LGERS with 20 or more years of service as law enforcement officers and all former members in TSERS and LGERS who are in receipt of a disability retirement allowance.

Section 3: Asset Data

The following table shows a comparison of the financial operations during the years 2021 and 2020.

Table 8: Asset Data

| Valuation Year | 12/31/2021 | 12/31/2020 |
|---|--------------------|--------------------|
| Prior year-end adjustments | | |
| Death Benefit Plans | | |
| Teachers and state employees | \$ 2,437,101 | |
| Local governmental employees | (973,659) | |
| Separate Insurance Benefits Plan | 19,684 | |
| Retirees' Contributory Death Benefit Plan | <u>(1,488,509)</u> | |
| Total | \$ (5,383) | |
| Contributions made on behalf of: | | |
| Death Benefit Plans | | |
| Teachers and state employees | \$ 20,839,750 | \$ 23,427,018 |
| Local governmental employees | 4,475,932 | 4,404,806 |
| Separate Insurance Benefits Plan | 0 | 0 |
| Retirees' Contributory Death Benefit Plan | <u>28,400,623</u> | <u>27,907,299</u> |
| Total | \$ 53,716,305 | \$ 55,739,123 |
| Death benefits paid on behalf of: | | |
| Death Benefit Plans | | |
| Teachers and state employees | \$ 22,439,826 | \$ 20,398,832 |
| Local governmental employees | 6,277,636 | 5,168,585 |
| Separate Insurance Benefits Plan | 889,000 | 974,506 |
| Retirees' Contributory Death Benefit Plan | <u>32,276,724</u> | <u>32,193,860</u> |
| Total | \$ 61,883,186 | \$ 58,735,783 |
| Net investment return as of the end of the valuation year on behalf of: | | |
| Death Benefit Plans | | |
| Teachers and state employees | \$ (926,324) | \$ 2,772,747 |
| Local governmental employees | (1,726,545) | 8,767,819 |
| Separate Insurance Benefits Plan | (1,311,273) | 6,162,391 |
| Retirees' Contributory Death Benefit Plan | <u>(5,164,962)</u> | <u>28,804,790</u> |
| Total | \$ (9,129,104) | \$ 46,507,747 |
| Assets held as of the end of the valuation year on behalf of: | | |
| Death Benefit Plans | | |
| Teachers and state employees | \$ 64,524,003 | \$ 64,613,302 |
| Local governmental employees | 92,070,698 | 96,572,606 |
| Separate Insurance Benefits Plan | 62,143,945 | 64,324,534 |
| Retirees' Contributory Death Benefit Plan | <u>285,680,133</u> | <u>296,209,705</u> |
| Total | \$ 504,418,779 | \$ 521,720,147 |

Section 3: Asset Data (continued)

The following table shows an allocation of investments by category as of December 31, 2021.

Table 9: Allocation of Investments by Category of the Market Value of Assets

| Cash and Receivables | 2.0% |
|----------------------|-------------|
| Fixed Income (LTIF) | 98.0% |
| Public Equity | 0.0% |
| Other* | <u>0.0%</u> |
| Total | 100.0% |

* Real Estate, Alternatives, Inflation and Credit.

Section 4: Valuation Results

Death Benefit Plan for Members of Teachers' and State Employees' Retirement System (TSERS)

The actuarial valuation of the Death Benefit Plan for members of the Teachers' and State Employees' Retirement System as of December 31, 2021, shows that the Plan has liabilities of \$155,295,645. Against these liabilities, the Plan has present assets of \$64,524,003. Prospective contributions by the State based on a 0.13% contribution rate have a value of \$211,183,344. The present and prospective assets, which amount to \$275,707,347, exceed the liabilities of \$155,295,645 by \$120,411,702.

Death Benefit Plan for Members of Local Governmental Employees' Retirement System (LGERS)

Coverage of general employees and firefighters under the Death Benefit Plan is optional for employers participating in the Local Governmental Employees' Retirement System. Coverage is mandatory for law enforcement officers.

Appendix E of this report shows the contribution rates for general employees and firefighters calculated for the fiscal year beginning July 1, 2023, for employers who have elected death benefit coverage. The rate for law enforcement officers is 0.14% of payroll.

The death benefit was increased, effective July 1, 2004, to provide a minimum of \$25,000 and a maximum of \$50,000. The contribution rate for local units with death benefit coverage as of June 30, 2004, has not been increased for this benefit improvement. However, units electing death benefit coverage beginning July 1, 2004, will pay the full cost of the new benefit.

The actuarial valuation of the Death Benefit Plan for Members of the Local Governmental Employees' Retirement System as of December 31, 2021, shows that the Plan has total liabilities of \$52,971,028. Against these liabilities, the Plan has present assets of \$92,070,698. Prospective contributions by the participating employers have a value of \$40,562,904. The total present and prospective assets amount to \$132,633,602, which exceeds the liabilities of \$52,971,028 by \$79,662,574.

Separate Insurance Benefits Plan for Law Enforcement Officers

Benefits payable under the Separate Insurance Benefits Plan are supported by the court costs as provided in G.S. 7A-304(a)(3). However, these contributions have been suspended. The actuarial valuation of the Separate Insurance Benefits Plan for Law Enforcement Officers as of December 31, 2021, shows that the Plan has liabilities of \$48,737,447. Against these liabilities, the Plan has present assets of \$62,143,945. Since current assets are more than adequate to support the benefits, the contributions to the Plan could continue to be suspended or benefits could be improved.

The 2013 Appropriations Act amended G.S. 143-166.60 to allow the assets of the Separate Insurance Benefits Plan for Law Enforcement Officers to be used to pay employer health insurance contributions and contribution rates of law enforcement officers (defined in G.S. 135-1(11c)) employed by the State and former law enforcement officers receiving a retirement allowance from TSERS, and requires these payments for fiscal years ending June 30, 2014, and June 30, 2015. The second payment was made during 2015 in the amount of approximately \$16.5 million. To the extent further payments are made, the results and conclusions in this report with respect to the Separate Insurance Benefits Plan for Law Enforcement Officers should not be relied upon.

Section 4: Valuation Results (continued)

Retirees' Contributory Death Benefit Plan

Benefits payable under the Retirees' Contributory Death Benefit Plan are supported entirely by the contributions of the participants and the investment earnings on these contributions. The monthly contribution rates are shown in Appendix A.

The actuarial valuation of the Retirees' Contributory Death Benefit Plan as of December 31, 2021, shows that the Plan has liabilities of \$1,476,063,839. Against these liabilities the Plan has present assets of \$285,680,133. Prospective contributions of participants eligible for benefits have a value of \$1,012,701,736. The total present and prospective assets amount to \$1,298,381,869, which are less than the liabilities of \$1,476,063,839 by \$177,681,970. The current assets and contribution rates of the Retirees' Contributory Death Benefit Plan are not adequate. The plan provisions and/or contribution rates should be changed to reverse this projected shortfall.

Since the prior valuation, a transition from the prior actuary to Buck resulted in valuation programming modifications and differences in methodology. Specifically, modifications included enhanced coding to better reflect the benefit election assumption for future retirements. The net impact of the overall transition changes increased the deficit by approximately \$30.6M, measured as of December 31, 2020.

Appendix A: Summary of Plan Provisions

Death Benefit Plan for Members of Teachers' and State Employees' Retirement System and for Members of Local Governmental Employees' Retirement System

Upon the death of a member in active service after one year of membership, or a former member within 180 days after termination of service, or a former member in receipt of a benefit from the Disability Income Plan of North Carolina, a lump sum death benefit is payable to his or her designated beneficiary or legal representative. Such death benefit shall be equal to the greater of:

- (1) The compensation on which contributions were made by the member during the calendar year preceding the year in which his or her death occurs, or
- (2) The greatest compensation on which contributions were made by the member during the 12-month period of service within the 24-month period of service ending on the last day of the month preceding the month in which his or her last day of actual service occurs.

For all employees, (1) and (2) above are subject to a minimum of twenty-five thousand dollars (\$25,000) and to a maximum of fifty thousand dollars (\$50,000).

Upon the death of a member in active service with LRS after completing one year of creditable service, a lump sum payment equal to the deceased member's highest annual compensation to a maximum of \$15,000 is made to his designated beneficiary or estate.

Separate Insurance Benefits Plan for Law Enforcement Officers

Upon the death of a law enforcement officer in active service, or a former law enforcement officer who had 20 or more years of service as a State or local governmental law enforcement officer, or a former law enforcement officer who is in receipt of a disability retirement allowance from any State-administered retirement system, or a former law enforcement officer in receipt of a benefit from the Disability Income Plan of North Carolina, a lump sum death benefit is payable to the surviving spouse or estate. Such death benefit shall be equal to the following:

- (1) For participants who are employed by an employer at the time of death, a benefit not to exceed \$5,000;
- (2) For participants who are eligible former officers, a benefit not to exceed \$4,000; and
- (3) For participants who die while in the actual performance of duty as an officer, an accidental line-of-duty benefit not to exceed \$2,100.

Appendix A: Summary of Plan Provisions (continued)

Retirees' Contributory Death Benefit Plan

Coverage under the Retirees' Contributory Death Benefit Plan is available to all members who are retired under the Teachers' and State Employees' Retirement System, the Local Governmental Employees' Retirement System, the Consolidated Judicial Retirement System and the Legislative Retirement System. Benefits payable under the Retirees' Contributory Death Benefit Plan are supported entirely by the contributions of participants.

The following is a schedule of sample monthly participant contribution rates under the Retirees' Contributory Death Benefit Plan.

| Coverage Age | Monthly Rate If Elected Upon Retirement (Members who retire before March 1, 2017) | Monthly Rate If Elected in Open Enrollment (February 1, 2008 to May 31, 2008) | Monthly Rate If Elected Upon Retirement (Members who retire on or after March 1, 2017) |
|--------------|---|---|--|
| Less than 50 | \$ 8 | \$ 8.89 | \$ 12.54 |
| 50 | 8 | 8.89 | 12.54 |
| 55 | 12 | 13.33 | 15.77 |
| 60 | 16 | 17.78 | 20.09 |
| 65 | 22 | 24.44 | 26.09 |
| 70 | 31 | 34.44 | 34.74 |
| 75 | 43 | 47.77 | 47.73 |
| 80 | 59 | 65.55 | 66.14 |
| 85 | 80 | 88.88 | 90.36 |

Upon the death of a participant, a lump sum death benefit is payable to his or her surviving spouse or estate. Such death benefit shall be equal to the following:

- (1) \$10,000, if death occurs on or after 24 months of coverage.
- (2) The total of the monthly contributions plus interest at an annual rate determined by the Board of Trustees, if death occurs before 24 months of coverage.

Changes Since Prior Valuation

None.

Appendix B: Actuarial Assumptions and Methods – TSERS Members

The assumptions described in in this section are applicable for the members of the Teachers’ and State Employees’ Retirement System (TSERS) who receive benefits under the TSERS Death Benefit Plan, the Separate Insurance Benefits Plan for Law Enforcement Officers, and the Retirees’ Contributory Death Benefit Plan. Assumptions are based on the experience investigation prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021 for use beginning with the December 31, 2020 actuarial valuation.

The methodology used to assess the actuarial position of each of these plans is to determine the present value of all future benefits for current employees and terminated participants and compare that total liability with the value of the current assets combined with the present value of future expected contributions from the employer(s) and/or participants, as appropriate. The result is a determination of the potential surplus or shortfall that exists when considering the total projected values of a system’s liabilities and prospective assets.

Interest Rate

3.00% per annum, compounded annually.

Price Inflation

Both general and wage inflation are assumed to be 2.50% per annum.

Real Wage Growth

0.75% per annum.

Separations from Active Service

Representative values of the assumed rates of separation from active service are as follows:

| Annual Rates of Withdrawal | | | | | | | | |
|----------------------------|-------------------|--------|--------------------------------------|--------|--------------------------|--------|-----------------|--------|
| Service | General Employees | | Teachers, Librarians, and Counselors | | Law Enforcement Officers | | Other Education | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 0 | 0.0900 | 0.0900 | 0.0500 | 0.0350 | 0.0350 | 0.0350 | 0.0900 | 0.0700 |
| 1 | 0.1700 | 0.1750 | 0.1750 | 0.1650 | 0.0925 | 0.0925 | 0.1900 | 0.1750 |
| 2 | 0.1500 | 0.1575 | 0.1550 | 0.1550 | 0.0925 | 0.0925 | 0.1700 | 0.1550 |
| 3 | 0.1250 | 0.1400 | 0.1450 | 0.1375 | 0.0950 | 0.0950 | 0.1300 | 0.1250 |
| 4 | 0.1100 | 0.1150 | 0.1150 | 0.1150 | 0.0800 | 0.0800 | 0.1100 | 0.1075 |

| After 5 years of Membership | | | | | | | | |
|-----------------------------|-------------------|--------|--------------------------------------|--------|--------------------------|--------|-----------------|--------|
| Service | General Employees | | Teachers, Librarians, and Counselors | | Law Enforcement Officers | | Other Education | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 25 | 0.2500 | 0.2500 | 0.3000 | 0.3500 | 0.0750 | 0.0750 | 0.2500 | 0.2500 |
| 30 | 0.1250 | 0.1200 | 0.0900 | 0.1000 | 0.0750 | 0.0750 | 0.1000 | 0.1500 |
| 35 | 0.0750 | 0.1000 | 0.0600 | 0.0575 | 0.0350 | 0.0350 | 0.0550 | 0.0750 |
| 40 | 0.0500 | 0.0575 | 0.0475 | 0.0400 | 0.0250 | 0.0250 | 0.0500 | 0.0650 |
| 45 | 0.0400 | 0.0400 | 0.0375 | 0.0350 | 0.0200 | 0.0200 | 0.0500 | 0.0475 |
| 50 | 0.0400 | 0.0400 | 0.0425 | 0.0400 | 0.0200 | 0.0200 | 0.0500 | 0.0450 |
| 55 | 0.0400 | 0.0400 | 0.0425 | 0.0400 | | | 0.0400 | 0.0350 |
| 60 | 0.0400 | 0.0400 | 0.0425 | 0.0400 | | | 0.0400 | 0.0350 |

Appendix B: Actuarial Assumptions and Methods – TSERS Members (continued)

| Annual Rates of Mortality for Employees (Base rates using Pub-2010 Amount Weighted) | | | | | | | | |
|---|--------------------------|---------------|---|---------------|-------------------------------------|---------------|------------------------|---------------|
| Service | General Employees | | Teachers, Librarians, and Counselors | | Law Enforcement Officers | | Other Education | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 25 | 0.00028 | 0.00009 | 0.00016 | 0.00009 | 0.00037 | 0.00020 | 0.00028 | 0.00009 |
| 30 | 0.00036 | 0.00015 | 0.00022 | 0.00014 | 0.00041 | 0.00027 | 0.00036 | 0.00015 |
| 35 | 0.00047 | 0.00023 | 0.00030 | 0.00020 | 0.00047 | 0.00036 | 0.00047 | 0.00023 |
| 40 | 0.00066 | 0.00036 | 0.00042 | 0.00031 | 0.00059 | 0.00049 | 0.00066 | 0.00036 |
| 45 | 0.00098 | 0.00056 | 0.00067 | 0.00048 | 0.00082 | 0.00067 | 0.00098 | 0.00056 |
| 50 | 0.00149 | 0.00083 | 0.00111 | 0.00073 | 0.00120 | 0.00091 | 0.00149 | 0.00083 |
| 55 | 0.00219 | 0.00123 | 0.00172 | 0.00107 | 0.00175 | 0.00123 | 0.00219 | 0.00123 |
| 60 | 0.00319 | 0.00186 | 0.00264 | 0.00161 | 0.00264 | 0.00168 | 0.00319 | 0.00186 |
| 65 | 0.00468 | 0.00296 | 0.00435 | 0.00270 | 0.00410 | 0.00228 | 0.00468 | 0.00296 |
| 70 | 0.00703 | 0.00489 | 0.00709 | 0.00485 | 0.00766 | 0.00454 | 0.00703 | 0.00489 |
| 74 | 0.01001 | 0.00731 | 0.00993 | 0.00809 | 0.01263 | 0.00787 | 0.01001 | 0.00731 |

| Annual Rates of Disability for Active Members with 5 or more years of service as of January 1, 1988 | | | | | | | | |
|---|--------------------------|---------------|---|---------------|-------------------------------------|---------------|------------------------|---------------|
| Age | General Employees | | Teachers, Librarians, and Counselors | | Law Enforcement Officers | | Other Education | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 25 | 0.00020 | 0.00024 | 0.00006 | 0.00018 | 0.00330 | 0.00330 | 0.00020 | 0.00024 |
| 30 | 0.00040 | 0.00040 | 0.00012 | 0.00026 | 0.00430 | 0.00430 | 0.00040 | 0.00040 |
| 35 | 0.00100 | 0.00100 | 0.00030 | 0.00060 | 0.00600 | 0.00600 | 0.00100 | 0.00100 |
| 40 | 0.00300 | 0.00180 | 0.00066 | 0.00102 | 0.00790 | 0.00790 | 0.00300 | 0.00180 |
| 45 | 0.00500 | 0.00320 | 0.00138 | 0.00178 | 0.01100 | 0.01100 | 0.00500 | 0.00320 |
| 50 | 0.00840 | 0.00500 | 0.00234 | 0.00316 | 0.01760 | 0.01760 | 0.00840 | 0.00500 |
| 55 | 0.01440 | 0.00880 | 0.00474 | 0.00554 | 0.03070 | 0.03070 | 0.01440 | 0.00880 |
| 60 | 0.02400 | 0.01380 | 0.00768 | 0.01020 | 0.06010 | 0.06010 | 0.02400 | 0.01380 |
| 64 | 0.03160 | 0.01780 | 0.01124 | 0.01392 | 0.11210 | 0.11210 | 0.03160 | 0.01780 |

Appendix B: Actuarial Assumptions and Methods – TSERS Members (continued)

Retirements

Representative values of the assumed rates of retirement from active service are as follows:

Annual Rates of Retirement

| General Employees - Males | | | | | | | |
|---------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.030 | 0.040 | 0.600 | 0.600 |
| 55 | | | | 0.030 | 0.040 | 0.350 | 0.350 |
| 60 | 0.090 | 0.070 | 0.070 | 0.100 | 0.225 | 0.270 | 0.270 |
| 65 | 0.180 | 0.250 | 0.250 | 0.300 | 0.400 | 0.300 | 0.300 |
| 70 | 0.180 | 0.250 | 0.225 | 0.225 | 0.250 | 0.300 | 0.300 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| General Employees - Females | | | | | | | |
|-----------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.035 | 0.040 | 0.400 | 0.400 |
| 55 | | | | 0.040 | 0.040 | 0.250 | 0.250 |
| 60 | 0.070 | 0.080 | 0.090 | 0.095 | 0.200 | 0.250 | 0.250 |
| 65 | 0.200 | 0.250 | 0.300 | 0.300 | 0.350 | 0.300 | 0.300 |
| 70 | 0.150 | 0.200 | 0.225 | 0.250 | 0.350 | 0.300 | 0.300 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| Teachers, Librarians, and Counselors - Males | | | | | | | |
|--|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.030 | 0.030 | 0.700 | 0.700 |
| 55 | | | | 0.045 | 0.030 | 0.450 | 0.450 |
| 60 | 0.085 | 0.080 | 0.100 | 0.100 | 0.300 | 0.300 | 0.300 |
| 65 | 0.175 | 0.225 | 0.250 | 0.325 | 0.400 | 0.250 | 0.250 |
| 70 | 0.175 | 0.225 | 0.250 | 0.250 | 0.250 | 0.300 | 0.300 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Appendix B: Actuarial Assumptions and Methods - TSERS Members (continued)

Annual Rates of Retirement (continued)

| Teachers, Librarians, and Counselors - Females | | | | | | | |
|--|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.050 | 0.045 | 0.750 | 0.750 |
| 55 | | | | 0.050 | 0.045 | 0.375 | 0.375 |
| 60 | 0.080 | 0.100 | 0.100 | 0.130 | 0.250 | 0.375 | 0.375 |
| 65 | 0.250 | 0.300 | 0.250 | 0.350 | 0.475 | 0.400 | 0.400 |
| 70 | 0.225 | 0.250 | 0.300 | 0.300 | 0.300 | 0.325 | 0.325 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| Law Enforcement Officers | | | | | | | |
|--------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | 0.040 | 0.050 | 0.050 | 0.800 | 0.800 |
| 55 | 0.200 | 0.200 | 0.350 | 0.350 | 0.500 | 0.650 | 0.650 |
| 60 | 0.100 | 0.200 | 0.125 | 0.250 | 0.250 | 0.500 | 0.500 |
| 65 | 0.150 | 0.450 | 0.250 | 0.250 | 0.250 | 0.500 | 0.500 |
| 70 | 0.250 | 0.150 | 0.250 | 0.250 | 0.250 | 0.500 | 0.500 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| Other Education Employees - Males | | | | | | | |
|-----------------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.035 | 0.045 | 0.500 | 0.500 |
| 55 | | | | 0.040 | 0.050 | 0.300 | 0.300 |
| 60 | 0.080 | 0.070 | 0.100 | 0.090 | 0.200 | 0.275 | 0.275 |
| 65 | 0.100 | 0.250 | 0.250 | 0.300 | 0.275 | 0.275 | 0.275 |
| 70 | 0.100 | 0.250 | 0.250 | 0.225 | 0.300 | 0.350 | 0.350 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| Other Education Employees - Females | | | | | | | |
|-------------------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.045 | 0.045 | 0.500 | 0.500 |
| 55 | | | | 0.045 | 0.060 | 0.300 | 0.300 |
| 60 | 0.070 | 0.090 | 0.100 | 0.100 | 0.300 | 0.300 | 0.300 |
| 65 | 0.175 | 0.250 | 0.250 | 0.300 | 0.350 | 0.350 | 0.350 |
| 70 | 0.150 | 0.200 | 0.225 | 0.200 | 0.275 | 0.350 | 0.350 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Appendix B: Actuarial Assumptions and Methods - TSERS Members (continued)

Salary Merit Increases

Total assumed salary increases are these merit rates combined with the wage inflation assumption of 3.25% (2.50% price inflation plus 0.75% real wage growth). Representative values of the assumed annual rates of salary merit increases are as follows:

| Service | General Employees | Teachers, Librarians and Counselors | Law Enforcement Officers | Other Education |
|---------|-------------------|-------------------------------------|--------------------------|-----------------|
| 0 | 3.00% | 4.05% | 4.80% | 4.25% |
| 5 | 1.80% | 2.87% | 3.10% | 2.65% |
| 10 | 1.10% | 2.04% | 2.00% | 1.85% |
| 15 | 0.60% | 1.13% | 0.80% | 1.33% |
| 20 | 0.50% | 0.00% | 0.80% | 0.83% |
| 25 | 0.40% | 0.00% | 0.80% | 0.33% |
| 30 | 0.00% | 0.00% | 0.40% | 0.00% |
| >=35 | 0.00% | 0.00% | 0.00% | 0.00% |

Post-Retirement Mortality

Representative values of the assumed post-retirement mortality rates as of 2010 (the most recent developed Public Pension mortality tables) prior to any mortality improvements are as follows:

| Annual Rates of Post-Retirement Mortality (Healthy Members at Retirement) | | | | | | | | |
|--|-------------------|---------|--------------------------------------|---------|--------------------------|---------|-----------------|---------|
| Service | General Employees | | Teachers, Librarians, and Counselors | | Law Enforcement Officers | | Other Education | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 55 | 0.00455 | 0.00272 | 0.00335 | 0.00266 | 0.00327 | 0.00279 | 0.00455 | 0.00272 |
| 60 | 0.00649 | 0.00365 | 0.00471 | 0.00344 | 0.00549 | 0.00482 | 0.00649 | 0.00365 |
| 65 | 0.00963 | 0.00582 | 0.00672 | 0.00456 | 0.00957 | 0.00832 | 0.00963 | 0.00582 |
| 70 | 0.01610 | 0.01010 | 0.01183 | 0.00789 | 0.01711 | 0.01438 | 0.01610 | 0.01010 |
| 75 | 0.02818 | 0.01789 | 0.02187 | 0.01499 | 0.03085 | 0.02483 | 0.02818 | 0.01789 |
| 80 | 0.05037 | 0.03360 | 0.04030 | 0.02895 | 0.05571 | 0.04287 | 0.05037 | 0.03360 |

Appendix B: Actuarial Assumptions and Methods - TSERS Members (continued)

Post-Retirement Mortality (continued)

| Annual Rates of Post-Retirement Mortality | | | | | | |
|---|--|---------|--------------------------------|---------|--------------------------|---------|
| Age | Contingent Survivors of Deceased Members | | Members Disabled at Retirement | | | |
| | All Survivors | | Non-Law Enforcement Officers | | Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 55 | 0.01147 | 0.00742 | 0.02355 | 0.01692 | 0.01818 | 0.01587 |
| 60 | 0.01450 | 0.00975 | 0.02785 | 0.01914 | 0.02280 | 0.01833 |
| 5 | 0.02086 | 0.01332 | 0.03524 | 0.02178 | 0.02677 | 0.02051 |
| 70 | 0.03221 | 0.01931 | 0.04599 | 0.02706 | 0.03353 | 0.02450 |
| 75 | 0.04971 | 0.02946 | 0.06347 | 0.03718 | 0.04344 | 0.03239 |
| 80 | 0.07802 | 0.04698 | 0.09259 | 0.05517 | 0.05921 | 0.04678 |

Mortality Assumption

All mortality rates use Pub-2010 amount-weighted tables.

Mortality Projection

All mortality rates are projected from 2010 using generational improvement with Scale MP-2019.

Deaths After Retirement (General Employees and Other Education)

Mortality rates are based on the General Mortality Table for Retirees. Rates for male members are multiplied by 105.5% at all age. Rates for female members are multiplied by 95% for ages under 76, increased by 1% for each age up to age 90 and by 110% for all ages greater than 89. Because the retiree tables have no rates prior to age 50, the General Mortality Table for Employees is used for ages less than 50.

Deaths After Retirement (Teachers)

Mortality rates are based on the Below-median Teachers Mortality Table for Retirees. Rates for male members are multiplied by 96% for ages under 83, increased by 2% for each age up to 87 and by 106% for all ages greater than 86. Rates for female members are multiplied by 101% for age 81, increased by 1% for each age up to 85, and by 105% for all ages greater than 84. Because the retiree tables have no rates prior to age 55, the Below-median Teachers Mortality Table for Employees is used for ages less than 55.

Deaths After Retirement (Law Enforcement Officers)

Mortality rates are based on the Safety Mortality Table for Retirees. Rates for all members are multiplied by 97% and Set Forward by 1 year. Because the retiree tables have no rates prior to age 45, the Safety Mortality Table for Employees is used for ages less than 45.

Deaths After Retirement (Survivors of Deceased Members)

Mortality rates are based on the Below- median Teachers Mortality Table for Contingent Survivors. Rates for male members are Set Forward 3 years. Rate for female members are Set Forward 1 year. Because the contingent survivor tables have no rates prior to age 45, the Below-median Teachers Mortality Table for Employees is used for ages less than 45.

Appendix B: Actuarial Assumptions and Methods - TSERS Members (continued)

Deaths After Retirement (Disabled Members at Retirement)

Mortality rates are based on the General Mortality Table for Disabled Retirees. Rates for male members not in Law Enforcement are Set Forward 3 years, while male members in Law Enforcement are Set Back 3 years. Rates for female members not in Law Enforcement are Set Back 1 year, while female members in Law Enforcement are Set Back 3 years.

Deaths Prior to Retirement

Mortality rates for the general and other education groups are based on the General Mortality Table for Employees. Mortality rates for teachers are based on the Teachers Mortality Table for Employees. Mortality rates for law enforcement officers are based on the Safety Mortality Table for Employees.

Benefit Election Assumption

We have assumed that 45% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (60% for those who are disabled at retirement).

Timing of Assumptions

All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year. The timing of retirement changes from mid-year to beginning of year at and after the 100% retirement age.

Missing Gender Code

For members reported on the data without a gender code, we use the prior year's code where available or assign a code based on inspection.

Changes Since Prior Valuation:

None.

Appendix C: Actuarial Assumptions and Methods - LGERS Members

The assumptions described in in this section are applicable for the members of the Local Governmental Employees' Retirement System (LGERS) who receive benefits under the LGERS Death Benefit Plan, the Separate Insurance Benefits Plan for Law Enforcement Officers, and the Retirees' Contributory Death Benefit Plan. Assumptions are based on the experience investigation prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021 for use beginning with the December 31, 2020 annual actuarial valuation.

The methodology used to assess the actuarial position of each of these plans is to determine the present value of all future benefits for current employees and terminated participants and compare that total liability with the value of the current assets combined with the present value of future expected contributions from the employer(s) and/or participants, as appropriate. The result is a determination of the potential surplus or shortfall that exists when considering the total projected values of a system's liabilities and prospective assets.

Interest Rate

3.00% per annum, compounded annually.

Inflation

Both general and wage inflation are assumed to be 2.50% per annum.

Real Wage Growth

0.75% per annum.

Separations From Active Service

Representative values of the assumed rates of separation from active service are as follows:

| Annual Rates of Withdrawal with up to 5 years of membership | | | | | | |
|--|--------------------------|---------------|--|---------------|---------------------------------|---------------|
| Service | General Employees | | Firefighters & Rescue Squad Workers | | Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 0 | 0.1100 | 0.1100 | 0.0750 | 0.0750 | 0.0900 | 0.0900 |
| 1 | 0.1750 | 0.1750 | 0.1250 | 0.1250 | 0.0875 | 0.0875 |
| 2 | 0.1500 | 0.1550 | 0.1100 | 0.1100 | 0.0900 | 0.0900 |
| 3 | 0.1250 | 0.1300 | 0.1000 | 0.1000 | 0.0925 | 0.0925 |
| 4 | 0.1050 | 0.1150 | 0.1000 | 0.1000 | 0.0725 | 0.0725 |

Appendix C: Actuarial Assumptions and Methods - LGERS Members (continued)

Separations From Active Service (continued)

| After five years of membership | | | | | | |
|--------------------------------|-------------------|--------|-------------------------------------|--------|--------------------------|--------|
| Age | General Employees | | Firefighters & Rescue Squad Workers | | Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 25 | 0.1200 | 0.1750 | 0.0700 | 0.0700 | 0.1000 | 0.1000 |
| 30 | 0.0750 | 0.1100 | 0.0700 | 0.0700 | 0.0600 | 0.0600 |
| 35 | 0.0550 | 0.0900 | 0.0500 | 0.0500 | 0.0600 | 0.0600 |
| 40 | 0.0550 | 0.0700 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 45 | 0.0425 | 0.0500 | 0.0350 | 0.0350 | 0.0300 | 0.0300 |
| 50 | 0.0425 | 0.0450 | 0.0500 | 0.0500 | 0.0450 | 0.0450 |
| 55 | 0.0425 | 0.0450 | 0.0500 | 0.0500 | 0.0450 | 0.0450 |
| 60 | 0.0425 | 0.0450 | 0.0500 | 0.0500 | | |

| Annual Rates of Mortality for Employees (Base rates using Pub-2010 Amount Weighted) | | | | | | |
|--|-------------------|---------|-------------------------------------|---------|--------------------------|---------|
| Age | General Employees | | Firefighters & Rescue Squad Workers | | Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 25 | 0.00028 | 0.00009 | 0.00037 | 0.00020 | 0.00037 | 0.00020 |
| 30 | 0.00036 | 0.00015 | 0.00041 | 0.00027 | 0.00041 | 0.00027 |
| 35 | 0.00047 | 0.00023 | 0.00047 | 0.00036 | 0.00047 | 0.00036 |
| 40 | 0.00066 | 0.00036 | 0.00059 | 0.00049 | 0.00059 | 0.00049 |
| 45 | 0.00098 | 0.00056 | 0.00082 | 0.00067 | 0.00082 | 0.00067 |
| 50 | 0.00149 | 0.00083 | 0.00120 | 0.00091 | 0.00120 | 0.00091 |
| 55 | 0.00219 | 0.00123 | 0.00175 | 0.00123 | 0.00175 | 0.00123 |
| 60 | 0.00319 | 0.00186 | 0.00264 | 0.00168 | 0.00264 | 0.00168 |
| 65 | 0.00468 | 0.00296 | 0.00410 | 0.00228 | 0.00410 | 0.00228 |
| 70 | 0.00703 | 0.00489 | 0.00766 | 0.00454 | 0.00766 | 0.00454 |
| 74 | 0.01001 | 0.00731 | 0.01263 | 0.00787 | 0.01263 | 0.00787 |

Appendix C: Actuarial Assumptions and Methods – LGERS Members (continued)

| Annual Rates of Disability | | | | | | |
|----------------------------|-------------------|---------|-------------------------------------|---------|--------------------------|---------|
| Age | General Employees | | Firefighters & Rescue Squad Workers | | Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 25 | 0.00040 | 0.00050 | 0.00060 | 0.00060 | 0.00060 | 0.00250 |
| 30 | 0.00050 | 0.00050 | 0.00100 | 0.00090 | 0.00100 | 0.00300 |
| 35 | 0.00050 | 0.00050 | 0.00070 | 0.00240 | 0.00200 | 0.00400 |
| 40 | 0.00100 | 0.00050 | 0.00400 | 0.00380 | 0.00300 | 0.00500 |
| 45 | 0.00200 | 0.00150 | 0.00400 | 0.00480 | 0.00400 | 0.00600 |
| 50 | 0.00300 | 0.00300 | 0.00800 | 0.00760 | 0.00400 | 0.00700 |
| 55 | 0.00500 | 0.00450 | 0.01200 | 0.01760 | 0.00400 | 0.00700 |
| 60 | 0.00650 | 0.00450 | 0.01500 | 0.02760 | 0.00400 | 0.00700 |
| 64 | 0.00650 | 0.00450 | 0.01500 | 0.03000 | 0.00400 | 0.00700 |

Retirements

Representative values of the assumed rates of retirement from active service are as follows:

Annual Rates of Retirement

| General Employees - Males | | | | | | | |
|---------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.030 | 0.055 | 0.400 | 0.400 |
| 55 | | | | 0.030 | 0.055 | 0.250 | 0.250 |
| 60 | 0.080 | 0.070 | 0.070 | 0.075 | 0.200 | 0.225 | 0.225 |
| 65 | 0.250 | 0.250 | 0.275 | 0.325 | 0.300 | 0.300 | 0.300 |
| 70 | 0.200 | 0.250 | 0.200 | 0.275 | 0.300 | 0.300 | 0.300 |
| 75 | 0.250 | 0.200 | 0.300 | 0.275 | 0.300 | 0.300 | 0.300 |
| 80 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

| General Employees - Females | | | | | | | |
|-----------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.035 | 0.050 | 0.450 | 0.450 |
| 55 | | | | 0.050 | 0.055 | 0.300 | 0.300 |
| 60 | 0.080 | 0.090 | 0.070 | 0.100 | 0.250 | 0.250 | 0.250 |
| 65 | 0.250 | 0.250 | 0.350 | 0.350 | 0.350 | 0.300 | 0.300 |
| 70 | 0.200 | 0.250 | 0.225 | 0.300 | 0.200 | 0.250 | 0.250 |
| 75 | 0.200 | 0.200 | 0.225 | 0.300 | 0.200 | 0.250 | 0.250 |
| 80 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Appendix C: Actuarial Assumptions and Methods – LGERS Members (continued)

Annual Rates of Retirement (continued)

| Firefighters & Rescue Squad Workers | | | | | | | |
|-------------------------------------|---------|--------|--------|--------|--------|--------|--------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | | 0.0325 | 0.0425 | 0.5000 | 0.5000 |
| 55 | 0.1200 | 0.0575 | 0.0575 | 0.0325 | 0.0425 | 0.4000 | 0.4000 |
| 60 | 0.1000 | 0.0575 | 0.0575 | 0.1250 | 0.3500 | 0.4000 | 0.4000 |
| 65 | 0.1000 | 0.2500 | 0.2500 | 0.2500 | 0.3500 | 0.3250 | 0.3250 |
| 70 | 0.3200 | 0.2500 | 0.2500 | 0.2500 | 0.3500 | 0.3250 | 0.3250 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| Law Enforcement Officers | | | | | | | |
|--------------------------|---------|-------|-------|-------|-------|-------|-------|
| Age | Service | | | | | | |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| 50 | | | 0.040 | 0.035 | 0.030 | 0.825 | 0.825 |
| 55 | 0.150 | 0.225 | 0.300 | 0.350 | 0.600 | 0.500 | 0.500 |
| 60 | 0.150 | 0.150 | 0.125 | 0.250 | 0.325 | 0.250 | 0.250 |
| 65 | 0.175 | 0.200 | 0.250 | 0.250 | 0.375 | 0.300 | 0.300 |
| 70 | 0.175 | 0.300 | 0.350 | 0.200 | 0.375 | 0.275 | 0.275 |
| 75 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Salary Merit Increases

Total assumed salary increases are these merit rates added to the wage inflation assumption of 3.25% (2.50% price inflation plus 0.75% real wage growth). Representative values of the assumed annual rates of salary increases are as follows:

Annual Rates of Salary Increase

| Service | General Employees | Firefighters & Rescue Squad Workers | Law Enforcement Officers |
|---------|-------------------|-------------------------------------|--------------------------|
| 0 | 5.00% | 4.75% | 4.50% |
| 5 | 2.70% | 2.65% | 2.60% |
| 10 | 1.73% | 1.68% | 1.81% |
| 15 | 1.08% | 1.03% | 1.36% |
| 20 | 0.69% | 0.64% | 1.10% |
| 25 | 0.55% | 0.50% | 0.85% |
| 30 | 0.55% | 0.50% | 0.60% |
| 35 | 0.00% | 0.50% | 0.35% |
| >=40 | 0.00% | 0.00% | 0.00% |

Appendix C: Actuarial Assumptions and Methods – LGERS Members (continued)

Post-Retirement Mortality

Representative values of the assumed post-retirement mortality rates as of 2010 (the most recent developed Public Pension mortality tables) prior to any mortality improvements are as follows:

Annual Rates of Post-Retirement Mortality (members healthy at retirement)

| Age | General Employees | | Firefighters, Rescue Squad Workers, & Law Enforcement Officers | |
|-----|-------------------|---------|--|---------|
| | Male | Female | Male | Female |
| 55 | 0.00477 | 0.00286 | 0.00327 | 0.00279 |
| 60 | 0.00684 | 0.00384 | 0.00549 | 0.00482 |
| 65 | 0.01064 | 0.00613 | 0.00957 | 0.00832 |
| 70 | 0.01828 | 0.01063 | 0.01711 | 0.01438 |
| 75 | 0.03227 | 0.01883 | 0.03085 | 0.02483 |
| 80 | 0.05810 | 0.03360 | 0.05571 | 0.04287 |

Annual Rates of Post-Retirement Mortality

| Age | Contingent Survivors of Deceased Members | | Members Disabled at Retirement | | | |
|-----|--|---------|--------------------------------|---------|---|---------|
| | All Survivors | | General Employees | | Firefighters, Rescue Squad Workers & Law Enforcement Officers | |
| | Male | Female | Male | Female | Male | Female |
| 55 | 0.01147 | 0.00742 | 0.02355 | 0.01692 | 0.01818 | 0.01587 |
| 60 | 0.01450 | 0.00975 | 0.02785 | 0.01914 | 0.02280 | 0.01833 |
| 65 | 0.02086 | 0.01332 | 0.03524 | 0.02178 | 0.02677 | 0.02051 |
| 70 | 0.03221 | 0.01931 | 0.04599 | 0.02706 | 0.03353 | 0.02450 |
| 75 | 0.04971 | 0.02946 | 0.06347 | 0.03718 | 0.04344 | 0.03239 |
| 80 | 0.07802 | 0.04698 | 0.09259 | 0.05517 | 0.05921 | 0.04678 |

Mortality Assumption

All mortality rates use Pub-2010 amount-weighted tables.

Mortality Projection

All mortality rates are projected from 2010 using generational improvement with Scale MP-2019.

Deaths After Retirement (General Employees)

Mortality rates are based on the General Mortality Table for Retirees. Rates for male members are first Set Forward 2 years, then are multiplied by 96% for ages under 81, and increase until reaching 100% at age 85 and above. Rates for female members are 100% for ages under 92 and increase until reaching 110% at age 94 and above. Because the retiree tables have no rates prior to age 50, the General Mortality Table for Employees is used for ages less than 50.

Appendix C: Actuarial Assumptions and Methods – LGERS Members (continued)

Deaths After Retirement (Firefighters, Rescue Squad Workers & Law Enforcement Officers)

Mortality rates are based on the Safety Mortality Table for Retirees. Rates for all members are multiplied by 97% and Set Forward by 1 year. Because the retiree tables have no rates prior to age 45, the Safety Mortality Table for Employees is used for ages less than 45.

Deaths After Retirement (Survivors of Deceased Members)

Mortality rates are based on the Below- median Teachers Mortality Table for Contingent Survivors. Rates for male members are Set Forward 3 years. Rates for female members are Set Forward 1 year. Because the contingent survivor tables have no rates prior to age 45, the Below-median Teachers Mortality Table for Employees is used for ages less than 45.

Deaths After Retirement (Disabled Members at Retirement)

Mortality rates are based on the General Mortality Table for Disabled Retirees. Rates for General Employee male members are Set Forward 3 years, while Firefighter, Rescue Squad Worker & Law Enforcement Officer male members are Set Back 3 years. Rates for General Employee female members are Set Back 1 year, while Firefighter, Rescue Squad Worker & Law Enforcement Officer female members are Set Back 3 years.

Deaths Prior to Retirement

Mortality rates for General Employees are based on the General Mortality Table for Employees. Mortality rates for Firefighters, Rescue Squad Workers & Law Enforcement Officers are based on the Safety Mortality Table for Employees.

Line-of-Duty Deaths

50% of deaths prior to retirement for firefighters, rescue squad workers and law enforcement officers are assumed to occur in the line-of-duty.

Benefit Election Assumption

We have assumed that 45% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (60% for those who are disabled at retirement).

Timing of Assumptions

All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year. The timing of retirement changes from mid-year to beginning of year at and after the 100% retirement age.

Missing Gender Code

For members reported on the data without a gender code, we use the prior year's code where available or assign a code based on first name.

Appendix C: Actuarial Assumptions and Methods – LGERS Members (continued)

Changes Since Prior Valuation:

None.

Appendix D: Actuarial Assumptions and Methods – CJRS Members

The assumptions described in in this section are applicable for the members of the Consolidated Judicial Retirement System (CJRS) who receive benefits under the Retirees’ Contributory Death Benefit Plan. Assumptions are based on the experience investigation prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021 for use beginning with the December 31, 2020 annual actuarial valuation.

The methodology used to assess the actuarial position of each of these plans is to determine the present value of all future benefits for current employees and terminated participants and compare that total liability with the value of the current assets combined with the present value of future expected contributions from the employer(s) and/or participants, as appropriate. The result is a determination of the potential surplus or shortfall that exists when considering the total projected values of a system’s liabilities and prospective assets.

Interest Rate

3.00% per annum, compounded annually.

Inflation

Both general and wage inflation is assumed to be 2.50% per annum.

Real Wage Growth

0.75% per annum.

Separations Before Retirement

Representative values of the assumed annual rates of separation are as follows:

| Age | Annual Rates of | | |
|-----|-----------------------------|-------------------------|--------|
| | Disability Male & Female | Base Mortality* Male | Female |
| 25 | .00002 | .00024 | .00008 |
| 30 | .00003 | .00031 | .00013 |
| 35 | .00008 | .00041 | .00021 |
| 40 | .00017 | .00057 | .00033 |
| 45 | .00035 | .00085 | .00051 |
| 50 | .00059 | .00129 | .00076 |
| 55 | .00119 | .00190 | .00112 |
| 60 | .00192 | .00276 | .00169 |
| 64 | .00246 | .00375 | .00245 |

*Base mortality rates as of 2010.

Appendix D: Actuarial Assumptions and Methods – CJRS Members (continued)

Service Retirement

Representative values of the assumed annual rates of service retirement are as follows:

| Age* | Service | | | | | |
|------|---------|------|------|------|------|------|
| | 5 | 10 | 15 | 20 | 25 | 30 |
| 50 | .020 | .020 | .020 | .020 | .150 | .090 |
| 55 | .020 | .020 | .020 | .020 | .050 | .090 |
| 60 | .040 | .040 | .040 | .040 | .200 | .170 |
| 65 | .120 | .120 | .120 | .120 | .120 | .120 |
| 70 | .250 | .250 | .250 | .250 | .250 | .250 |

*All members are assumed to retire no later than age 72.

Salary Increases (Merit Only)

Representative values of the assumed annual rates of salary merit increases are as follows:

| Annual Rate of Salary Increase | |
|--------------------------------|-------|
| Service | Rate |
| 0 | .0150 |
| 5 | .0100 |
| 10 | .0050 |
| >=15 | .0000 |

Appendix D: Actuarial Assumptions and Methods – CJRS Members (continued)

Deaths After Retirement

Representative values of the assumed post-retirement mortality rates in 2010 prior to any mortality improvements are as follows:

| Age | Annual Rate of Death after Retirement | | | | | |
|-----|---------------------------------------|--------|-------------------------------|--------|---------------------------------|--------|
| | Healthy Retirees at Retirement | | Survivors of Deceased Members | | Disabled Retirees at Retirement | |
| | Male | Female | Male | Female | Male | Female |
| 55 | .00387 | .00275 | .01147 | .00742 | .02114 | .01742 |
| 60 | .00552 | .00371 | .01450 | .00975 | .02503 | .01956 |
| 65 | .00820 | .00595 | .02086 | .01332 | .03044 | .02256 |
| 70 | .01381 | .01032 | .03221 | .01931 | .03901 | .02862 |
| 75 | .02437 | .01827 | .04971 | .02946 | .05192 | .04003 |
| 80 | .04391 | .03260 | .07802 | .04698 | .07348 | .06007 |

Deaths After Retirement (Healthy Members at Retirement)

Mortality rates are based on the Pub-2010 General Retirees Above-Median Amount-Weighted Mortality.

Deaths After Retirement (Disabled Members at Retirement)

Mortality rates are based on the Pub-2010 General Disabled Retirees Amount-Weighted Mortality.

Deaths After Retirement (Survivors of Deceased Members)

Mortality rates are based on the Pub-2010 General Contingent Survivors Amount-Weighted Mortality.

Deaths Prior to Retirement

Mortality rates are based on the Pub-2010 General Employees Amount- Weighted Mortality.

Mortality Projection

All mortality rates are projected from 2010 using generational improvement with Scale MP-2019.

Appendix D: Actuarial Assumptions and Methods – CJRS Members (continued)

Benefit Election Assumption

We have assumed that 45% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (60% for those who are disabled at retirement).

Timing of Assumptions

All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year. The timing of retirement changes from mid-year to beginning of year at and after the 100% retirement age.

Missing Gender Code

For members reported on the data without a gender code, we use the prior year's code where available or assign a code based on inspection.

Changes Since Prior Valuation:

None.

Appendix E: Actuarial Assumptions and Methods – LRS Members

The assumptions described in in this section are applicable for the members of the Legislative Retirement System (LRS) who receive benefits under the Retirees’ Contributory Death Benefit Plan or the TSERS Death Benefit Plan. Assumptions are based on the experience investigation prepared as of December 31, 2019 and adopted by the Board of Trustees on January 28, 2021 for use beginning with the December 31, 2020 annual actuarial valuation.

The methodology used to assess the actuarial position of each of these plans is to determine the present value of all future benefits for current employees and terminated participants and compare that total liability with the value of the current assets combined with the present value of future expected contributions from the employer(s) and/or participants, as appropriate. The result is a determination of the potential surplus or shortfall that exists when considering the total projected values of a system’s liabilities and prospective assets.

Interest Rate

3.00% per annum, compounded annually.

Inflation

General inflation is assumed to be 2.50% per annum.

Separations Before Retirement

Representative values of the assumed annual rates of separation are as follows:

| Age | Disability | Annual Rates of Base Mortality* | | Withdrawal |
|-----|---------------|---------------------------------|--------|---------------|
| | Male & Female | Male | Female | Male & Female |
| 25 | .0001 | .00028 | .00009 | .100 |
| 30 | .0004 | .00036 | .00015 | .100 |
| 35 | .0010 | .00047 | .00023 | .100 |
| 40 | .0029 | .00066 | .00036 | .100 |
| 45 | .0049 | .00098 | .00056 | .100 |
| 50 | .0084 | .00149 | .00083 | .100 |
| 55 | .0144 | .00219 | .00123 | .100 |
| 60 | | .00319 | .00186 | .100 |
| 64 | | .00433 | .00269 | .100 |

* Base mortality rates as of 2010

Service Retirement

Representative values of the assumed annual rates of separation for members with at least 5 years of service are as follows:

| Annual Rates of Retirement | |
|----------------------------|-------|
| Age | Rate |
| 60 | 0.100 |
| 65 | 0.100 |
| 70 | 0.130 |
| 75 | 0.150 |
| 80 | 1.000 |

Appendix E: Actuarial Assumptions and Methods – LRS Members (continued)

Deaths After Retirement

Representative values of the assumed post-retirement mortality rates in 2010 prior to any mortality improvements are as follows:

| Age | Annual Rates of Death after Retirement | | | | | |
|-----|--|--------|-------------------------------|--------|---------------------------------|--------|
| | Healthy Retirees at Retirement | | Survivors of Deceased Members | | Disabled Retirees at Retirement | |
| | Male | Female | Male | Female | Male | Female |
| 55 | .00387 | .00275 | .00824 | .00446 | .02114 | .01742 |
| 60 | .00552 | .00371 | .01012 | .00622 | .02503 | .01956 |
| 65 | .00820 | .00595 | .01384 | .00899 | .03044 | .02256 |
| 70 | .01381 | .01032 | .02129 | .01353 | .03901 | .02862 |
| 75 | .02437 | .01827 | .03382 | .02151 | .05192 | .04003 |
| 80 | .04391 | .03260 | .05360 | .03573 | .07348 | .06007 |

Deaths After Retirement (Healthy at Retirement)

Mortality rates are based on the Pub-2010 General Retirees Above-Median Amount-Weighted Mortality.

Deaths After Retirement (Disabled Members at Retirement)

Mortality rates are based on the Pub-2010 General Disabled Retirees Amount-Weighted Mortality.

Deaths After Retirement (Survivors of Deceased Members)

Mortality rates are based on the Pub-2010 General Contingent Survivors Amount-Weighted Mortality.

Deaths Prior to Retirement

Mortality rates are based on the Pub-2010 General Employees Amount- Weighted Mortality.

Mortality Projection

All mortality rates are projected from 2010 using generational improvement with Scale MP-2019.

Benefit Election Assumption

We have assumed that 45% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (60% for those who are disabled at retirement).

Timing of Assumptions

All withdrawals, deaths, disabilities, retirements, and salary increases are assumed to occur July 1 of each year. The timing of retirement changes from mid-year to beginning of year at and after the 100% retirement age.

Appendix E: Actuarial Assumptions and Methods – LRS Members (continued)

Missing Gender Code

For members reported on the data without a gender code, we use the prior year's code where available or assign a code based on inspection.

Changes Since Prior Valuation

None.

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage

The table below provides the contribution rate payable by Local employers for death benefit coverage for fiscal year beginning July 1, 2023.

| Employer Code | Employer | Contribution Rate |
|---------------|--|-------------------|
| 90001 | Yancey County | 0.05% |
| 90011 | Burnsville, Town of | 0.07% |
| 90092 | Martin-Tyrrell-Washington Dist Health Dept | 0.04% |
| 90096 | Albemarle Regional Health Services | 0.05% |
| 90098 | Toe River Health District | 0.06% |
| 90099 | Appalachian District Health Dept | 0.03% |
| 90101 | Alamance County | 0.04% |
| 90111 | Burlington, City of | 0.05% |
| 90117 | Alamance Municipal A.B.C. Board | 0.11% |
| 90131 | Elon, Town of | 0.04% |
| 90201 | Alexander County | 0.06% |
| 90203 | Alexander County Health Dept | 0.03% |
| 90205 | Alexander County Public Library | 0.06% |
| 90206 | Alexander County Dept of S S | 0.03% |
| 90301 | Alleghany County | 0.05% |
| 90305 | Northwestern Regional Library | 0.09% |
| 90401 | Anson County | 0.06% |
| 90411 | Wadesboro, Town of | 0.07% |
| 90413 | Wadesboro Housing Authority | 0.08% |
| 90417 | Wadesboro A.B.C. Board | 0.13% |
| 90421 | Lilesville, Town of | 0.04% |
| 90431 | Polkton, Town of | 0.12% |
| 90501 | Ashe County | 0.05% |
| 90601 | Avery County | 0.08% |
| 90605 | Avery-Mitchell-Yancey Reg Library | 0.08% |
| 90617 | High Country A.B. C. Board | 0.06% |
| 90701 | Beaufort County | 0.03% |
| 90704 | Beaufort County A.B.C. Board | 0.10% |
| 90705 | B.H.M. Regional Library | 0.09% |
| 90709 | Mideast Commission | 0.04% |
| 90711 | Washington, City of | 0.05% |
| 90721 | Aurora, Town of | 0.13% |
| 90804 | Bertie County A.B.C. Board | 0.13% |
| 90805 | Albemarle Regional Library | 0.12% |
| 90808 | Bertie-Martin Regional Jail Comm | 0.05% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 90811 | Aulander, Town of | 0.06% |
| 90813 | Colerain, Town of | 0.22% |
| 90901 | Bladen County | 0.05% |
| 90911 | Elizabethtown, Town of | 0.06% |
| 90918 | South Eastern Economic Development Comm | 0.02% |
| 90921 | White Lake, Town of | 0.05% |
| 90931 | Clarkton, Town pf | 0.06% |
| 91001 | Brunswick County | 0.04% |
| 91003 | Brunswick Co Health Dept | 0.03% |
| 91006 | Brunswick Co Dept of Social Services | 0.03% |
| 91011 | Southport, City of | 0.05% |
| 91013 | Southeast Brunswick Sanitary District | 0.11% |
| 91015 | Cape Fear Regional Jetport | 0.51% |
| 91017 | Southport A.B.C. Board | 0.17% |
| 91021 | Oak Island, Town of | 0.06% |
| 91027 | Oak Island A.B.C. Bd | 0.16% |
| 91041 | Sunset Beach, Town of | 0.03% |
| 91047 | Sunset Beach A.B.C. Board | 0.30% |
| 91057 | Shalotte A.B.C. Board | 0.13% |
| 91061 | Ocean Isle Beach, Town of | 0.05% |
| 91067 | Ocean Isle Beach A.B.C. | 0.10% |
| 91071 | Boiling Spring Lakes, City of | 0.05% |
| 91091 | Bald Head Island, Village of | 0.05% |
| 91101 | Buncombe County | 0.03% |
| 91102 | Land-of-Sky Regional Council | 0.04% |
| 91107 | Western NC Regional Air Quality | 0.04% |
| 91108 | Metro Sewerage Dist of Buncombe County | 0.04% |
| 91109 | Woodfin Sanitary Water and Sewer Dist | 0.04% |
| 91127 | Asheville A.B.C. Board | 0.06% |
| 91128 | Asheville Regional Airport Authority | 0.05% |
| 91141 | Weaverville, Town of | 0.09% |
| 91151 | Black Mountain, Town of | 0.03% |
| 91154 | Black Mountain A.B.C. Board | 0.09% |
| 91161 | Montreat, Town of | 0.04% |
| 91201 | Burke County | 0.05% |
| 91203 | Burke Co Health Dept | 0.04% |
| 91206 | Burke Co Dept of Social Services | 0.04% |
| 91211 | Valdese, Town of | 0.06% |
| 91217 | Morganton A.B.C. Board | 0.10% |
| 91221 | Drexel, Town of | 0.04% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 91233 | Morganton Housing Authority | 0.05% |
| 91241 | Glen Alpine, Town of | 0.04% |
| 91301 | Cabarrus County | 0.04% |
| 91302 | Water & Sewer Auth of Cabarrus County | 0.03% |
| 91306 | Cabarrus Co Public Health Auth | 0.02% |
| 91311 | Concord, City of | 0.03% |
| 91317 | Concord A.B.C. Board | 0.07% |
| 91327 | Mount Pleasant A.B.C. Board | 0.04% |
| 91331 | Kannapolis, City of | 0.04% |
| 91401 | Caldwell County | 0.04% |
| 91411 | Granite Falls, Town of | 0.06% |
| 91417 | Granite Falls A.B.C. Board | 0.14% |
| 91423 | Lenoir Housing Authority | 0.06% |
| 91451 | Lenoir, City of | 0.12% |
| 91501 | Camden County | 0.06% |
| 91504 | Camden County A.B.C. Board | 0.19% |
| 91601 | Carteret County | 0.05% |
| 91604 | Carteret County A.B.C. Board | 0.08% |
| 91611 | Morehead City, Town of | 0.04% |
| 91631 | Beaufort, Town of | 0.04% |
| 91641 | Pine Knoll Shores, Town of | 0.03% |
| 91671 | Cape Carteret, Town of | 0.04% |
| 91681 | Atlantic Beach, Town of | 0.10% |
| 91704 | Caswell County A.B.C. Board | 0.13% |
| 91719 | Yanceyville, Town of | 0.03% |
| 91801 | Catawba County | 0.04% |
| 91804 | Catawba County A.B.C. Board | 0.15% |
| 91811 | Hickory, City of | 0.04% |
| 91813 | Hickory Public Housing Authority | 0.03% |
| 91819 | Western Piedmont Regional Transit Authority | 0.22% |
| 91821 | Claremont, City of | 0.04% |
| 91831 | Maiden, Town of | 0.04% |
| 91841 | Longview, Town of | 0.04% |
| 91851 | Conover, Town of | 0.06% |
| 91871 | Newton, City of | 0.05% |
| 91901 | Chatham County | 0.04% |
| 91904 | Chatham County A.B.C. Board | 0.12% |
| 91911 | Siler City, Town of | 0.04% |
| 91917 | Siler City A.B.C. Board | 0.06% |
| 91921 | Pittsboro, Town of | 0.05% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|--|-------------------|
| 92001 | Cherokee County | 0.08% |
| 92005 | Nantahala Regional Library | 0.20% |
| 92011 | Murphy, Town of | 0.09% |
| 92017 | Murphy A.B.C. Board | 0.06% |
| 92101 | Chowan County | 0.05% |
| 92104 | Chowan County A.B.C. Board | 0.13% |
| 92109 | Albemarle Regional Planning & Development Comm | 0.04% |
| 92111 | Edenton, Town of | 0.05% |
| 92113 | New Edenton Housing Auth | 0.07% |
| 92201 | Clay County | 0.06% |
| 92301 | Cleveland County | 0.04% |
| 92311 | Shelby, City of | 0.05% |
| 92317 | Shelby A.B.C. Board | 0.09% |
| 92321 | Kings Mountain, City of | 0.10% |
| 92327 | Kings Mountain A.B.C. Board | 0.21% |
| 92331 | Boiling Springs, Town of | 0.09% |
| 92351 | Grover, Town of | 0.07% |
| 92401 | Columbus County | 0.07% |
| 92411 | Whiteville, City of | 0.07% |
| 92417 | Whiteville A.B.C. Board | 0.01% |
| 92427 | Lake Waccamaw A.B.C. Board | 0.25% |
| 92501 | Craven County | 0.05% |
| 92504 | Craven Co A.B.C. Bd | 0.08% |
| 92505 | Craven-Pamlico-Carteret Regional Library | 0.11% |
| 92506 | Coastal Carolina Regional Airport | 0.23% |
| 92507 | Neuse River Council of Governments | 0.02% |
| 92508 | Coastal Regional Solid Waste Mngt Auth | 0.07% |
| 92511 | New Bern, City of | 0.05% |
| 92513 | Trillium Health Resources | 0.03% |
| 92521 | Trent Woods, Town of | 0.06% |
| 92531 | Havelock, City of | 0.04% |
| 92601 | Cumberland County | 0.04% |
| 92604 | Cumberland Co A.B.C. Board | 0.05% |
| 92607 | Mid-Carolina Council Of Governments | 0.07% |
| 92611 | Fayetteville, City of | 0.05% |
| 92613 | Fayetteville Metropolitan Housing Auth | 0.05% |
| 92631 | Hope Mills, Town of | 0.05% |
| 92661 | Spring Lake, Town of | 0.06% |
| 92681 | Eastover, Town of | 0.05% |
| 92701 | Currituck County | 0.05% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 92801 | Dare County | 0.04% |
| 92802 | Dare County Tourism Board | 0.03% |
| 92804 | Dare County A.B.C. Board | 0.07% |
| 92811 | Nags Head, Town of | 0.04% |
| 92821 | Kill Devil Hills, Town of | 0.05% |
| 92831 | Manteo, Town of | 0.09% |
| 92841 | Southern Shores, Town of | 0.03% |
| 92851 | Kitty Hawk, Town of | 0.10% |
| 92901 | Davidson County | 0.06% |
| 92911 | Thomasville, City of | 0.06% |
| 92917 | Lexington A.B.C. Board | 0.16% |
| 92931 | Lexington, City of | 0.04% |
| 93001 | Davie County | 0.04% |
| 93011 | Mocksville, Town of | 0.05% |
| 93028 | Mocksville-Cooleemee A.B.C. Board | 0.08% |
| 93101 | Duplin County | 0.07% |
| 93108 | Eastpointe Human Services | 0.03% |
| 93111 | Beulaville, Town of | 0.06% |
| 93121 | Kenansville, Town of | 0.08% |
| 93131 | Warsaw, Town of | 0.16% |
| 93141 | Faison, Town of | 0.05% |
| 93161 | Rose Hill, Town of | 0.09% |
| 93201 | Durham County | 0.04% |
| 93204 | Durham County A.B.C. Board | 0.05% |
| 93219 | Triangle J Council of Governments | 0.03% |
| 93301 | Edgecombe County | 0.06% |
| 93304 | Edgecombe County A.B.C. Board | 0.12% |
| 93305 | Edgecombe County Memorial Library | 0.06% |
| 93309 | Upper Coastal Plain Council of Governements | 0.04% |
| 93311 | Tarboro, Town of | 0.04% |
| 93317 | Tarboro Redevelopment Commission | 0.06% |
| 93321 | Rocky Mount, City of | 0.04% |
| 93323 | Rocky Mount-Wilson Airport Authority | 0.05% |
| 93331 | Pinetops, Town of | 0.08% |
| 93341 | Macclesfield, Town of | 0.02% |
| 93406 | Piedmont Triad Regional Council | 0.10% |
| 93413 | Winston-Salem Housing Authority | 0.05% |
| 93417 | Triad Municipal A.B.C. Board | 0.10% |
| 93431 | Rural Hall, Town of | 0.04% |
| 93501 | Franklin County | 0.07% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 93517 | Franklinton A.B.C Board | 0.15% |
| 93521 | Louisburg, Town of | 0.06% |
| 93527 | Louisburg A.B.C. Board | 0.09% |
| 93601 | Gaston County | 0.03% |
| 93602 | Stanley, Town of | 0.06% |
| 93609 | Partners Behavioral Health Management | 0.04% |
| 93610 | Mcadenville, Town of | 0.04% |
| 93617 | Gastonia A.B.C. Board | 0.24% |
| 93631 | Cramerton, Town of | 0.15% |
| 93641 | Cherryville, City of | 0.07% |
| 93671 | Bessemer City, City of | 0.11% |
| 93691 | Mount Holly, City of | 0.04% |
| 93701 | Gates County | 0.06% |
| 93704 | Gates County A.B.C. Board | 0.20% |
| 93803 | Graham Co Health Dept | 0.04% |
| 93806 | Graham County Dept of S S | 0.03% |
| 93821 | Robbinsville, Town of | 0.09% |
| 93901 | Granville County | 0.05% |
| 93904 | Granville Co A.B.C. Bd | 0.15% |
| 93906 | Granville County Hospital | 0.03% |
| 93908 | Granville-Vance Public Health | 0.03% |
| 93910 | South Granville Water and Sewer Authority | 0.10% |
| 93911 | Oxford, City of | 0.06% |
| 93913 | Oxford Housing Authority | 0.06% |
| 93914 | Stovall, Town of | 0.26% |
| 93931 | Butner, Town of | 0.09% |
| 94001 | Greene County | 0.06% |
| 94004 | Greene County A.B.C. Board | 0.13% |
| 94005 | Neuse Regional Library-Greene County | 0.17% |
| 94011 | Hookerton, Town of | 0.02% |
| 94101 | Guilford County | 0.04% |
| 94111 | Greensboro, City of | 0.05% |
| 94112 | Piedmont Triad Reg Water Auth | 0.05% |
| 94117 | Greensboro A.B.C. Bd | 0.07% |
| 94121 | High Point, City of | 0.04% |
| 94127 | High Point A.B.C. Bd | 0.08% |
| 94131 | Jamestown, Town of | 0.04% |
| 94151 | Gibsonville, Town of | 0.06% |
| 94172 | Summerfield Fire District | 0.03% |
| 94201 | Halifax County | 0.05% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|--|-------------------|
| 94204 | Halifax County A.B.C. Board | 0.06% |
| 94205 | Halifax County Tourism Development Authority | 0.12% |
| 94209 | Roanoke Rapids Sanitary District | 0.06% |
| 94211 | Enfield, Town of | 0.12% |
| 94221 | Roanoke Rapids, City of | 0.06% |
| 94231 | Weldon, Town of | 0.09% |
| 94241 | Scotland Neck, Town of | 0.12% |
| 94251 | Hobgood, Town of | 0.06% |
| 94301 | Harnett County | 0.05% |
| 94311 | Dunn, City of | 0.06% |
| 94313 | Dunn Housing Authority | 0.10% |
| 94317 | Dunn A.B.C. Board | 0.10% |
| 94321 | Lillington, Town of | 0.03% |
| 94331 | Erwin, Town of | 0.08% |
| 94341 | Coats, Town of | 0.05% |
| 94347 | Angier A.B.C. Board | 0.03% |
| 94401 | Haywood County | 0.04% |
| 94408 | Junaluska Sanitary District | 0.06% |
| 94411 | Waynesville, Town of | 0.06% |
| 94412 | Waynesville A.B.C. Board | 0.12% |
| 94431 | Canton, Town of | 0.06% |
| 94501 | Henderson County | 0.04% |
| 94511 | Hendersonville, City of | 0.04% |
| 94521 | Laurel Park, Town of | 0.06% |
| 94527 | Laurel Park A.B.C. Board | 0.07% |
| 94532 | Blue Ridge Fire Department | 0.03% |
| 94551 | Mills River, Town of | 0.08% |
| 94601 | Hertford County | 0.06% |
| 94604 | Hertford County A.B.C. Board | 0.10% |
| 94611 | Ahoskie, Town of | 0.09% |
| 94631 | Winton, Town of | 0.17% |
| 94701 | Hoke County | 0.06% |
| 94704 | Hoke County A.B.C. Board | 0.07% |
| 94711 | Raeford, Town of | 0.07% |
| 94801 | Hyde County | 0.06% |
| 94812 | Ocracoke Sanitary Dist | 0.07% |
| 94901 | Iredell County | 0.04% |
| 94911 | Statesville, City of | 0.05% |
| 94917 | Statesville A.B.C. Board | 0.11% |
| 94921 | Mooreville, City of | 0.04% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|--|-------------------|
| 94923 | Mooreville Housing Authority | 0.03% |
| 94927 | Mooreville A.B.C. Board | 0.07% |
| 94931 | Troutman, Town of | 0.10% |
| 95001 | Jackson County | 0.06% |
| 95002 | Tuckaseegee Water Authority | 0.06% |
| 95005 | Fontana Regional Library | 0.08% |
| 95008 | Southwestern NC Planning & Econ Dev Comm | 0.05% |
| 95009 | Vaya Health | 0.03% |
| 95011 | Sylva, Town of | 0.04% |
| 95017 | Jackson County A.B.C. Board | 0.07% |
| 95101 | Johnston County | 0.04% |
| 95104 | Johnston County A.B.C. Board | 0.09% |
| 95105 | Public Library of Johnston Co and Smithfield | 0.04% |
| 95106 | Archer Lodge, Town of | 0.23% |
| 95110 | Johnston Health Center | 0.08% |
| 95111 | Smithfield, Town of | 0.05% |
| 95121 | Selma, Town of | 0.05% |
| 95123 | Selma Housing Authority | 0.04% |
| 95131 | Clayton, Town of | 0.04% |
| 95141 | Benson, Town of | 0.04% |
| 95201 | Jones County | 0.04% |
| 95204 | Jones County A.B.C. Board | 0.17% |
| 95211 | Pollockville, Town of | 0.45% |
| 95301 | Lee County | 0.07% |
| 95317 | Sanford A.B.C. Board | 0.11% |
| 95321 | Broadway, Town of | 0.10% |
| 95401 | Lenoir County | 0.05% |
| 95404 | Lenoir County A.B.C. Board | 0.07% |
| 95405 | Neuse Regional Library | 0.05% |
| 95411 | Kinston, City of | 0.06% |
| 95413 | Kinston Housing Authority | 0.05% |
| 95415 | Kinston-Lenoir Co Pub Library | 0.09% |
| 95421 | Pink Hill, Town of | 0.05% |
| 95431 | Lagrange, Town of | 0.04% |
| 95501 | Lincoln County | 0.05% |
| 95511 | Lincolnton, City of | 0.05% |
| 95513 | Lincolnton Housing Authority | 0.08% |
| 95517 | Lincolnton A.B.C. Board | 0.13% |
| 95601 | Macon County | 0.05% |
| 95611 | Franklin, Town of | 0.06% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|--|-------------------|
| 95617 | Highlands A.B.C. Board | 0.21% |
| 95701 | Madison County | 0.08% |
| 95711 | Mars Hill, Town of | 0.05% |
| 95721 | Marshall, Town of | 0.11% |
| 95801 | Martin County | 0.07% |
| 95802 | Martin Co Travel & Tourism Auth | 0.28% |
| 95804 | Martin County A.B.C. Board | 0.04% |
| 95813 | Williamston Housing Authority | 0.09% |
| 95831 | Hamilton, Town of | 0.07% |
| 95901 | McDowell County | 0.05% |
| 95911 | Marion, Town of | 0.06% |
| 96001 | Mecklenburg County | 0.03% |
| 96004 | Mecklenburg County A.B.C. Board | 0.06% |
| 96005 | Charlotte Mecklenburg Public Library | 0.03% |
| 96008 | Mecklenburg Emer Med Svcs Agcy | 0.02% |
| 96021 | Pineville, Town of | 0.04% |
| 96031 | Mint Hill, Town of | 0.04% |
| 96061 | Stallings, Town of | 0.08% |
| 96071 | Matthews, Town of | 0.05% |
| 96081 | Davidson, Town of | 0.07% |
| 96101 | Mitchell County | 0.11% |
| 96111 | Spruce Pine, Town of | 0.08% |
| 96201 | Montgomery County | 0.05% |
| 96204 | Montgomery-Municipal A.B.C. Board | 0.09% |
| 96251 | Mount Gilead, Town of | 0.07% |
| 96301 | Moore County | 0.05% |
| 96304 | Moore County A.B.C. Board | 0.10% |
| 96305 | Moore County Tourism Development Authority | 0.08% |
| 96310 | Moore County Airport Authority | 0.11% |
| 96311 | Southern Pines, Town of | 0.04% |
| 96321 | Vass, Town of | 0.06% |
| 96331 | Aberdeen, Town of | 0.06% |
| 96351 | Pinehurst, Village of | 0.04% |
| 96361 | Pinebluff, Town of | 0.19% |
| 96371 | Whispering Pines, Village of | 0.06% |
| 96381 | Foxfire Village | 0.08% |
| 96401 | Nash County | 0.04% |
| 96404 | Nash County A.B.C. Board | 0.09% |
| 96421 | Nashville, Town of | 0.05% |
| 96431 | Middlesex, Town of | 0.11% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 96501 | New Hanover County | 0.04% |
| 96502 | New Hanover Airport Auth | 0.05% |
| 96504 | New Hanover County A.B.C. Board | 0.18% |
| 96508 | Lower Cape Fear Water & Sewer Auth | 0.07% |
| 96511 | Wrightsville Beach, Town of | 0.05% |
| 96541 | Kure Beach, Town of | 0.12% |
| 96601 | Northampton County | 0.06% |
| 96604 | Northampton County A.B.C. Board | 0.22% |
| 96701 | Onslow County | 0.04% |
| 96704 | Onslow County A.B.C. Board | 0.08% |
| 96708 | Onslow Water & Sewer Authority | 0.10% |
| 96711 | Jacksonville, City of | 0.05% |
| 96721 | Swansboro, Town of | 0.05% |
| 96731 | Holly Ridge, Town of | 0.05% |
| 96751 | North Topsail Beach, Town of | 0.11% |
| 96801 | Orange County | 0.04% |
| 96804 | Orange County A.B.C. Board | 0.04% |
| 96808 | Orange Water and Sewer Authority | 0.03% |
| 96811 | Chapel Hill, Town of | 0.05% |
| 96821 | Carrboro, Town of | 0.05% |
| 96831 | Hillsborough, Town of | 0.04% |
| 96901 | Pamlico County | 0.07% |
| 96918 | Bay River Metro Sewerage District | 0.12% |
| 97001 | Pasquotank County | 0.06% |
| 97002 | Pasquotank-Camden Ambulance Service | 0.03% |
| 97004 | Pasquotank Co A.B.C. Board | 0.05% |
| 97005 | East Albemarle Regional Library | 0.05% |
| 97011 | Elizabeth City | 0.05% |
| 97015 | Pasquotank-Camden Library | 0.08% |
| 97018 | Elizabeth City-Pasquotank Co Industrial Development | 0.12% |
| 97101 | Pender County | 0.04% |
| 97104 | Pender County A.B.C. Board | 0.10% |
| 97121 | Topsail Beach, Town of | 0.08% |
| 97131 | Surf City, Town of | 0.04% |
| 97201 | Perquimans County | 0.05% |
| 97211 | Hertford, Town of | 0.07% |
| 97217 | Hertford A.B.C. Board | 0.12% |
| 97301 | Person County | 0.05% |
| 97304 | Person Co A.B.C. Bd | 0.17% |
| 97311 | Roxboro, City of | 0.06% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|--------------------------------------|-------------------|
| 97401 | Pitt County | 0.04% |
| 97404 | Pitt County A.B.C. Board | 0.06% |
| 97405 | Sheppard Memorial Library | 0.08% |
| 97408 | Contennea Metropolitan Sewerage Dist | 0.06% |
| 97411 | Greenville, City of | 0.04% |
| 97412 | Greenville Utilities Commission | 0.03% |
| 97413 | Greenville Housing Authority | 0.06% |
| 97421 | Farmville, Town of | 0.05% |
| 97431 | Grifton, Town of | 0.09% |
| 97441 | Bethel, Town of | 0.05% |
| 97451 | Winterville, Town of | 0.04% |
| 97471 | Grimesland, Town of | 0.08% |
| 97501 | Polk County | 0.06% |
| 97511 | Tryon, Town of | 0.06% |
| 97517 | Tryon A.B.C. Board | 0.04% |
| 97531 | Saluda, City of | 0.04% |
| 97601 | Randolph County | 0.04% |
| 97611 | Asheboro, City of | 0.05% |
| 97613 | Asheboro Housing Authority | 0.09% |
| 97621 | Randleman, City of | 0.05% |
| 97623 | Randleman Housing Authority | 0.06% |
| 97627 | Randleman A.B.C. Board | 0.04% |
| 97631 | Liberty, Town of | 0.05% |
| 97651 | Archdale, City of | 0.08% |
| 97701 | Richmond County | 0.05% |
| 97705 | Sandhill Regional Library | 0.09% |
| 97711 | Rockingham, City of | 0.06% |
| 97713 | Rockingham Authority | 0.04% |
| 97717 | Hamlet A.B.C. Board | 0.07% |
| 97721 | Hamlet, City of | 0.06% |
| 97727 | Rockingham A.B.C. Board | 0.08% |
| 97801 | Robeson County | 0.04% |
| 97802 | Lumber River Council of Governments | 0.03% |
| 97803 | Robeson County Housing Authority | 0.14% |
| 97805 | Robeson County Public Library | 0.06% |
| 97811 | Lumberton, City of | 0.06% |
| 97821 | Fairmont, Town of | 0.12% |
| 97823 | Fairmont Housing Authority | 0.06% |
| 97831 | St Pauls, Town of | 0.06% |
| 97840 | Maxton, Town of | 0.07% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---|-------------------|
| 97847 | Maxton A.B.C. Board | 0.17% |
| 97851 | Pembroke, Town of | 0.07% |
| 97861 | Rowland, Town of | 0.07% |
| 97871 | Red Springs, Town of | 0.08% |
| 97901 | Rockingham County | 0.04% |
| 97911 | Reidsville, City of | 0.07% |
| 97913 | New Reidsville Housing Auth | 0.11% |
| 97917 | Reidsville A.B.C. Board | 0.07% |
| 97921 | Mayodan, Town of | 0.10% |
| 97941 | Madison, Town of | 0.05% |
| 98001 | Rowan County | 0.05% |
| 98004 | Rowan County A.B.C. Board | 0.11% |
| 98011 | Salisbury, City of | 0.04% |
| 98021 | East Spencer, Town of | 0.08% |
| 98023 | East Spencer Housing Authority | 0.03% |
| 98031 | Spencer, Town of | 0.06% |
| 98041 | China Grove, Town of | 0.05% |
| 98061 | Granite Quarry, Town of | 0.03% |
| 98091 | Cleveland, Town of | 0.05% |
| 98101 | Rutherford County | 0.05% |
| 98102 | Broad River Water Authority | 0.04% |
| 98103 | Rutherford Polk McDowell Dist Brd of Health | 0.03% |
| 98109 | Isothermal Planning and Dev Comm | 0.05% |
| 98111 | Forest City, Town of | 0.05% |
| 98121 | Spindale, Town of | 0.06% |
| 98141 | Rutherfordton, Town of | 0.04% |
| 98201 | Sampson County | 0.04% |
| 98205 | J C Holiday Mem Library | 0.02% |
| 98211 | Clinton, City of | 0.05% |
| 98218 | Clinton A.B.C. Board | 0.12% |
| 98221 | Salemburg, Town of | 0.05% |
| 98231 | Newton Grove, Town of | 0.04% |
| 98241 | Garland, Town of | 0.07% |
| 98251 | Turkey, Town of | 0.14% |
| 98261 | Roseboro, Town of | 0.08% |
| 98271 | Autryville, Town of | 0.04% |
| 98301 | Scotland County | 0.05% |
| 98304 | Scotland County A.B.C. Board | 0.08% |
| 98311 | Laurinburg, City of | 0.05% |
| 98313 | Laurinburg Housing Authority | 0.08% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|---------------------------------------|-------------------|
| 98321 | Wagram, Town of | 0.07% |
| 98401 | Stanly County | 0.06% |
| 98411 | Albemarle, City of | 0.05% |
| 98414 | Misenheimer, Village of | 0.19% |
| 98421 | Norwood, Town of | 0.06% |
| 98451 | Badin, Town of | 0.05% |
| 98501 | Stokes County | 0.05% |
| 98511 | Walnut Cove, Town of | 0.05% |
| 98521 | King, City of | 0.04% |
| 98601 | Surry County | 0.08% |
| 98611 | Pilot Mountain, Town of | 0.04% |
| 98621 | Dobson, Town of | 0.06% |
| 98631 | Mount Airy, City of | 0.14% |
| 98637 | Mount Airy Alcoholic Board of Control | 0.08% |
| 98641 | Elkin, Town of | 0.06% |
| 98701 | Swain County | 0.06% |
| 98711 | Bryson City, Town of | 0.06% |
| 98717 | Bryson City A.B.C. Board | 0.08% |
| 98801 | Transylvania County | 0.05% |
| 98811 | Brevard, City of | 0.06% |
| 98901 | Tyrrell County | 0.09% |
| 98904 | Tyrrell Co A.B.C. Board | 0.08% |
| 99001 | Union County | 0.04% |
| 99011 | Monroe, City of | 0.04% |
| 99013 | Monroe Housing Authority | 0.06% |
| 99014 | Indian Trail A.B.C. Board | 0.10% |
| 99017 | Monroe A.B.C. Board | 0.08% |
| 99021 | Marshville, Town of | 0.05% |
| 99031 | Wingate, Town of | 0.08% |
| 99041 | Waxhaw, Town of | 0.04% |
| 99051 | Indian Trail, Town of | 0.04% |
| 99071 | Weddington, Town of | 0.14% |
| 99101 | Vance County | 0.06% |
| 99109 | Kerr-Tar Regional Council of Govts | 0.04% |
| 99111 | Henderson, City of | 0.07% |
| 99201 | Wake County | 0.03% |
| 99202 | Holly Springs, Town of | 0.03% |
| 99203 | Rolesville, Town of | 0.08% |
| 99204 | Wake County A.B.C. Board | 0.05% |
| 99206 | Morrisville, Town of | 0.03% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|----------------------------------|-------------------|
| 99213 | Raleigh Housing Authority | 0.06% |
| 99218 | Raleigh-Durham Airport Authority | 0.03% |
| 99221 | Cary, Town of | 0.03% |
| 99222 | Centennial Authority | 0.03% |
| 99231 | Wendell, Town of | 0.03% |
| 99241 | Zebulon, Town of | 0.03% |
| 99251 | Garner, Town of | 0.04% |
| 99252 | Garner Fire Dept | 0.02% |
| 99261 | Fuquay-Varina, Town of | 0.04% |
| 99271 | Apex, Town of | 0.03% |
| 99281 | Wake Forest, Town of | 0.07% |
| 99291 | Knightdale, Town of | 0.03% |
| 99301 | Warren County | 0.07% |
| 99401 | Washington County | 0.06% |
| 99404 | Washington County A.B.C. Board | 0.10% |
| 99405 | Pettigrew Regional Library | 0.07% |
| 99411 | Plymouth, Town of | 0.09% |
| 99413 | Plymouth Housing Authority | 0.07% |
| 99431 | Creswell, Town of | 0.05% |
| 99501 | Watauga County | 0.07% |
| 99511 | Boone, Town of | 0.05% |
| 99521 | Blowing Rock, Town of | 0.03% |
| 99601 | Wayne County | 0.06% |
| 99602 | Fork Township Sanitary Dist | 0.03% |
| 99604 | Wayne County A.B.C. Board | 0.10% |
| 99609 | Southern Wayne Sanitary District | 0.03% |
| 99610 | Eastern Wayne Sanitary Dist | 0.12% |
| 99611 | Goldsboro, City of | 0.05% |
| 99613 | Goldsboro Housing Authority | 0.05% |
| 99701 | Wilkes County | 0.04% |
| 99711 | North Wilkesboro, Town of | 0.09% |
| 99717 | North Wilkesboro A.B.C. Board | 0.07% |
| 99721 | Wilkesboro, Town of | 0.05% |
| 99801 | Wilson County | 0.04% |
| 99804 | Wilson County A.B.C. Board | 0.05% |
| 99811 | Wilson, City of | 0.03% |
| 99841 | Lucama, Town of | 0.05% |
| 99901 | Yadkin County | 0.05% |
| 99911 | Yadkinville, Town of | 0.06% |
| 99921 | Jonesville, Town of | 0.18% |

Appendix F: Contribution Rates Payable by Local Employers for Death Benefit Coverage (continued)

| Employer Code | Employer | Contribution Rate |
|---------------|-------------------------------|-------------------|
| 99931 | East Bend, Town of | 0.10% |
| 99991 | N C Assoc of Co Commissioners | 0.03% |
| 99999 | N C League of Municipalities | 0.03% |