



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

Death Benefit Plans Principal Results of Actuarial Valuation as of December 31, 2019

October 29, 2020 Board of Trustees Meeting

Larry Langer, ASA, FCA, EA, MAAA

Jonathan Craven, ASA, FCA, EA, MAAA





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	12/31/2019	12/31/2018
Teachers' and State Employees' Retirement System Death Benefit Plan		
Liabilities	\$ 169,651,732	\$ 171,546,221
Current Assets	58,812,369	49,315,169
Present Value of Future Contributions	256,670,319	249,985,503
Surplus / (Deficit)	145,830,956	127,754,451
Local Governmental Employees' Retirement System Death Benefit Plan		
Liabilities	\$ 58,975,706	\$ 58,515,422
Current Assets	88,568,566	82,886,234
Present Value of Future Contributions	43,141,531	42,148,306
Surplus / (Deficit)	72,734,391	66,519,118
Separate Insurance Benefits Plan for Law Enforcement Officers		
Liabilities	\$ 37,917,284	\$ 36,828,878
Current Assets	59,136,649	55,376,104
Present Value of Future Contributions	0	0
Surplus / (Deficit)	21,219,365	18,547,226
Retirees' Contributory Death Benefit Plan		
Liabilities	\$ 1,266,494,557	\$ 1,239,353,244
Current Assets	\$ 271,691,476	\$ 253,125,884
Present Value of Future Contributions	\$ 967,643,306	\$ 950,763,602
Surplus / (Deficit)	\$ (27,159,775)	\$ (35,463,758)

The deficit for the Retirees' Contributory Death Benefit Plan decreased from last year. However, 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.

The increased surplus in the other plans results in changes not being needed at this time.



Retirees' Contributory Death Benefit Plan Asset Deficits

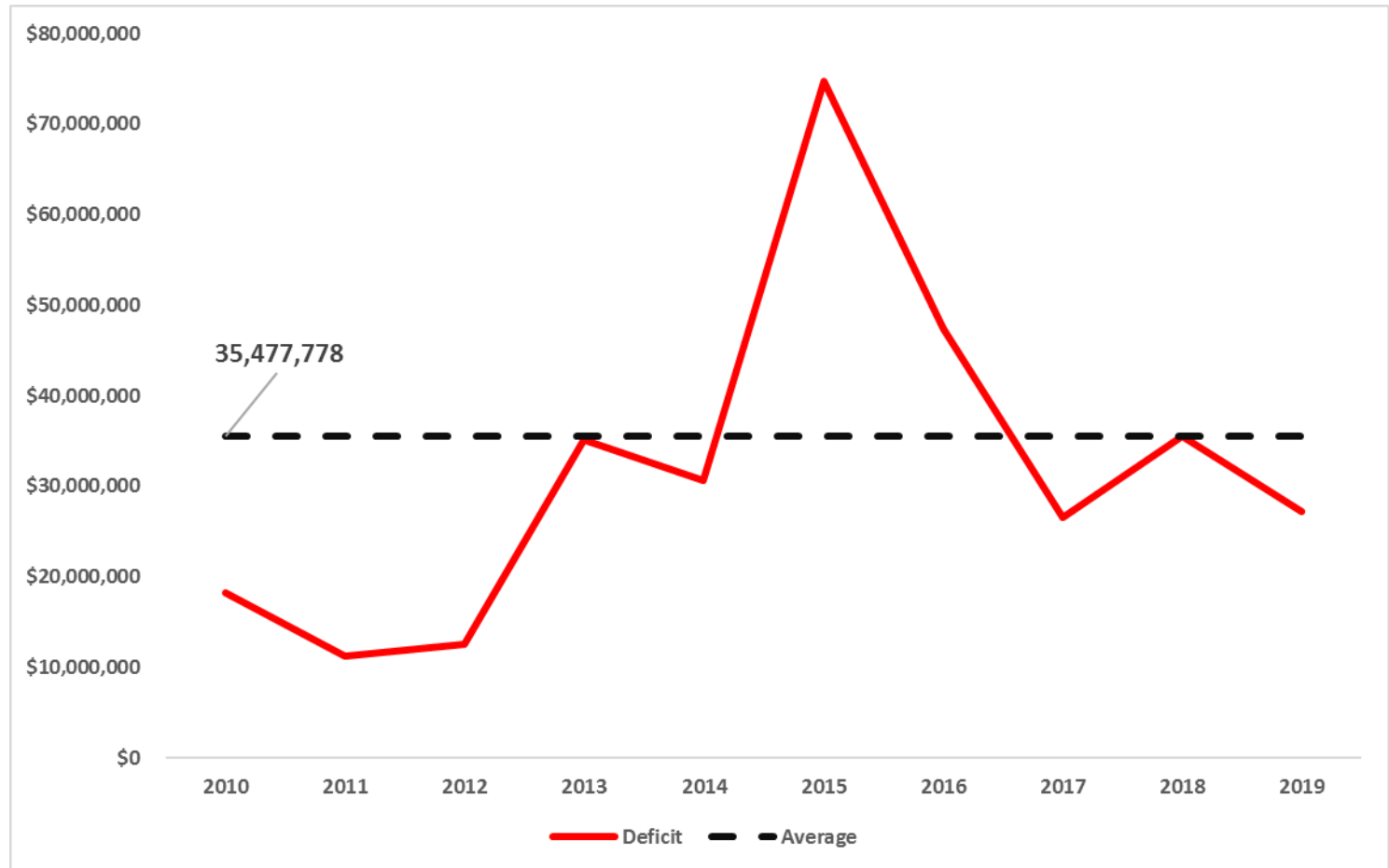
Inputs

Membership Data
Asset Data
Benefit Provisions
Assumptions
Funding Methodology



Results

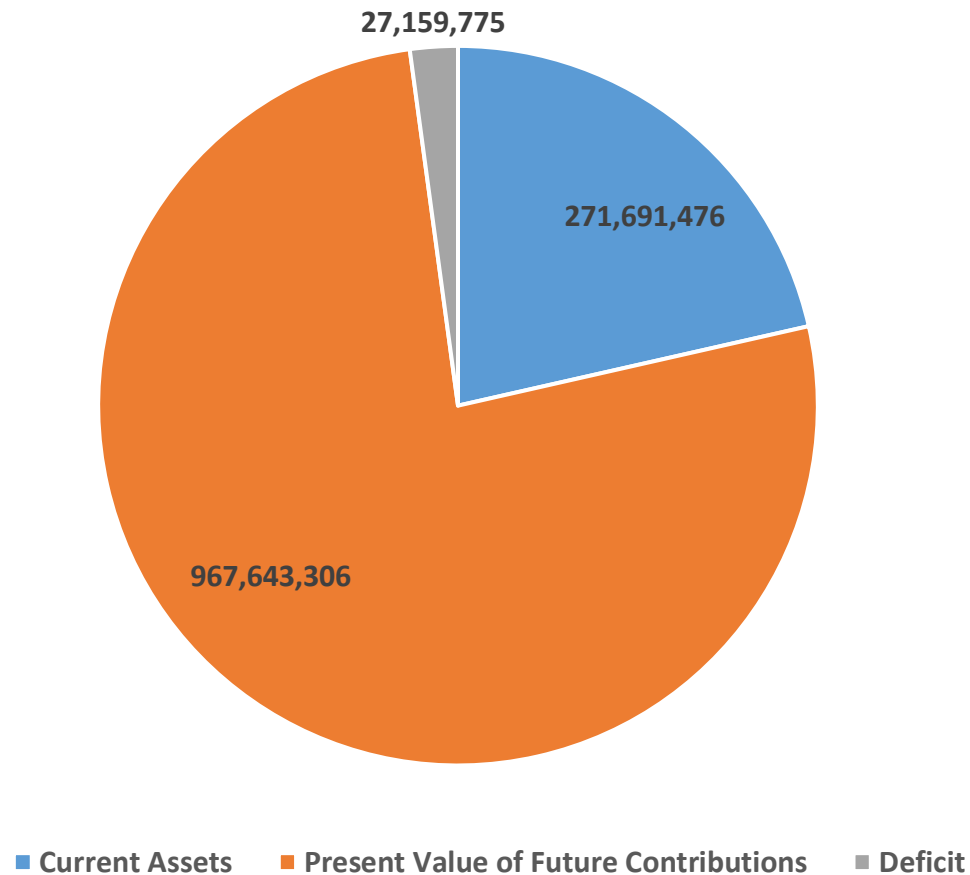
Actuarial Value of Assets
Actuarial Accrued Liability
Net Actuarial Gain or Loss
Funded Ratio
Employer Contributions
Benefit Enhancement
Additional Disclosures
Projections



Level of deficit is dependent on the expected rate of return which is under review as part of experience study.



Sources of Retirees' Contributory Death Present Value of Future Benefits



Comments on Retirees' Contributory Death Benefit Plan



- \$27.2 million dollar gap between assets and liabilities
- Based on the GASB 74 payout projections, assets will be exhausted by 2079
- Eleven 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.



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, Cavanaugh Macdonald performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections or required disclosure information. Results prior to December 31, 2017 were provided by the prior consulting actuary.

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.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Jonathan T. Craven, ASA, EA, FCA, MAAA
Consulting Actuary



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

Death Benefit Plans of North Carolina

Report on the Actuarial Valuation
Prepared as of December 31, 2019

October 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 9, 2020

Trustees of the Death Benefit Plans
3200 Atlantic Avenue
Raleigh, NC 27604

Members of the Board:

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, 2019. Information contained in our report for plan years prior to December 31, 2017 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.

House Bill 1136/Session Law 2020-31 funded the TSERS Death Benefit Plan at 0.13% of payroll instead of the recommended contribution rate of 0.16% of payroll for FYE 2021. Because this happened after the valuation date of 12/31/2019 and the plan is in a substantial surplus position, we did not include this information in our calculations for this valuation. If the lower contribution rate continues beyond FYE 2021, it will be included in the 12/31/2020 valuation.

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 Comprehensive Annual Financial Report (CAFR) 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 System 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 Cavanaugh Macdonald Consulting (CMC) to review any statement you wish to make on the results contained in this report. CMC 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 reviewed for reasonableness and consistency with the prior valuation, these elements have not been audited by CMC 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 appropriate and reasonable. We prepared this valuation in accordance with the requirements of this standard and in accordance with all applicable Actuarial Standards of Practice (ASOP).

The latest assumptions were adopted for use beginning with the December 31, 2015, actuarial valuation, based on the experience study prepared as of December 31, 2014, and adopted by the Board of Trustees on April 21, 2016 as updated for the participation assumption change made in 2017. 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.

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, CMC 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, CMC performed no analysis of the potential range of such future differences.

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.

Respectfully submitted,

A handwritten signature in blue ink, appearing to be 'LL' with a stylized flourish at the end.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to be 'Jonathan T. Craven' in a cursive script.

Jonathan T. Craven, ASA, EA, FCA, MAAA
Consulting Actuary



Table of Contents

Section 1: Introduction	1
Table 1 – Summary of Principal Results	1
Section 2: Membership Data	2
Table 2 – Active Member Data for the TSERS Death Benefit Plan	2
Table 3 – Disabled Member Data for the TSERS Death Benefit Plan	2
Table 4 – Active Member Data for the LGERS Death Benefit Plan	3
Table 5 – Data for the Retirees' Contributory Death Benefit Plan	3
Table 6 – Active Data for the Separate Insurance Benefits Plan	4
Table 7 – Data for Members in Receipt of Benefits in the Separate Insurance Benefits Plan	4
Section 3: Asset Data	5
Table 8 – Asset Data	5
Table 9 – Allocation of Investments by Category of the Market Value of Assets	6
Section 4: Results of Valuation	7
Death Benefit Plan for Members of the Teachers' and State Employees' Retirement System	7
Death Benefit Plan for Members of the Local Governmental Employees' Retirement System	7
Separate Insurance Benefits Plan for Law Enforcement Officers	8
Retirees' Contributory Death Benefit Plan	8
Appendices	9
Appendix A – Summary of Plan Provisions	9
Appendix B – Actuarial Assumptions and Methods for TSERS Members	11
Appendix C – Actuarial Assumptions and Methods for LGERS Members	18
Appendix D – Actuarial Assumptions and Methods for CJRS Members	23
Appendix E – Actuarial Assumptions and Methods for LRS Members	25
Appendix F – Contribution Rates Payable by Local Employers for Death Benefit Coverage	27



Section 1: Introduction

The Death Benefit Plan with respect to members covered under the TSERS became effective as of July 1, 1979, under 135-5(l) of the statutes. The Trustees of the Death Benefit Plan subsequently permitted the participation of members of the LGERS in the Plan under 128-27(l) of the statutes. 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 143-166.60 of the statutes. The Retirees' Contributory Death Benefit Plan became effective July 1, 1988 under 120-4.27 of the statutes for retired members of the LRS, under 128-27(l2) of the statutes for retired members of the LGERS, under 135-5(l) of the statutes for retired members of the TSERS and under 135-64(g) of the statutes for retired members of the CJRS.

This report presents the results of a valuation of the Plans prepared as of December 31, 2019. 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	12/31/2019	12/31/2018
Teachers' and State Employees' Retirement System Death Benefit Plan		
Liabilities	\$ 169,651,732	\$ 171,546,221
Current Assets	58,812,369	49,315,169
Present Value of Future Contributions	256,670,319	249,985,503
Surplus / (Deficit)	145,830,956	127,754,451
Local Governmental Employees' Retirement System Death Benefit Plan		
Liabilities	\$ 58,975,706	\$ 58,515,422
Current Assets	88,568,566	82,886,234
Present Value of Future Contributions	43,141,531	42,148,306
Surplus / (Deficit)	72,734,391	66,519,118
Separate Insurance Benefits Plan for Law Enforcement Officers		
Liabilities	\$ 37,917,284	\$ 36,828,878
Current Assets	59,136,649	55,376,104
Present Value of Future Contributions	0	0
Surplus / (Deficit)	21,219,365	18,547,226
Retirees' Contributory Death Benefit Plan		
Liabilities	\$ 1,266,494,557	\$ 1,239,353,244
Current Assets	271,691,476	253,125,884
Present Value of Future Contributions	967,643,306	950,763,602
Surplus / (Deficit)	(27,159,775)	(35,463,758)



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.

Table 2: Active Member Data for the TSERS Death Benefit Plan

	Member Count	Average Age	Average Service	Reported Compensation
Teachers, Librarians and Counselors	150,366	43.68	10.76	\$ 7,221,097,504
Other Education	48,009	49.37	11.24	2,062,650,952
General Employees	102,062	46.73	10.63	5,286,075,974
Law Enforcement Officers	<u>5,525</u>	<u>40.27</u>	<u>11.92</u>	<u>316,643,367</u>
Total	305,962	45.53	10.81	\$ 14,886,467,797

In addition, the valuation of the active legislator death benefit, payable by the TSERS Death Benefit Plan, is based on 170 legislators with average age of 59.25 years and average service of 6.47 years.

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

	Member Count	Average Age	Average Service	Reported Compensation
Teachers, Librarians and Counselors	1,849	55.49	13.98	\$ 71,631,196
Other Education	744	56.58	13.40	21,202,017
General Employees	3,146	56.00	12.99	114,759,865
Law Enforcement Officers	<u>35</u>	<u>49.60</u>	<u>16.17</u>	<u>2,253,346</u>
Total	5,774	55.87	13.38	\$ 209,846,424

The table above includes members who are currently receiving a benefit from the Disability Income Plan of North Carolina.



Section 2: Membership Data

The tables below provide 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 the LGERS Death Benefit Plan

	Member Count	Average Age	Average Service	Reported Compensation
General Employees	76,987	45.64	9.65	\$ 3,551,258,182
Firefighters	10,086	37.59	9.47	511,259,859
Law Enforcement Officers	<u>21,350</u>	<u>39.10</u>	<u>11.31</u>	<u>1,178,614,399</u>
Total	108,423	43.60	9.96	\$ 5,241,132,440

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, 2019, is 556 (compared to 559 as of December 31, 2018).

Table 5: Data for the Retirees' Contributory Death Benefit Plan

	Member Count	Average Age
Retired members currently covered under death benefit plan	128,986	70.01
Terminated members eligible to elect coverage under death plan at retirement	80,768	48.23
Active members eligible to elect coverage under death benefit plan at retirement	<u>444,524</u>	<u>45.16</u>
Total	654,278	50.44



Section 2: Membership Data

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 the Separate Insurance Benefits Plan

	Member Count	Average Age	Average Service	Reported Compensation
State Law Enforcement	5,560	40.32	11.92	\$ 318,896,712
Local Law Enforcement	<u>21,350</u>	<u>39.10</u>	<u>11.31</u>	<u>1,178,614,399</u>
Total	26,910	39.35	11.44	\$ 1,497,511,111

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

	Member Count	Average Age
State Law Enforcement	2,927	65.57
Local Law Enforcement	<u>8,441</u>	<u>62.88</u>
Total	11,368	63.57

The table 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 2019 and 2018.

Table 8: Asset Data

Valuation Year	12/31/2019	12/31/2018*
Balance adjustment due to Accrual Accounting:		
Death Benefit Plans		
Teachers and state employees		\$ 1,815,450
Local governmental employees		677,731
Separate Insurance Benefit Plans		290,012
Retirees' Contributory Death Benefit Plan		<u>1,107,533</u>
Total		\$ 3,890,726
Contributions made on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 23,222,242	\$ 24,182,138
Local governmental employees	4,103,456	4,315,812
Separate Insurance Benefit Plans	0	0
Retirees' Contributory Death Benefit Plan	<u>27,254,689</u>	<u>26,479,039</u>
Total	\$ 54,580,387	\$ 54,976,989
Death benefits paid on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 16,249,107	\$ 20,707,127
Local governmental employees	5,042,350	5,754,682
Separate Insurance Benefit Plans	735,300	882,202
Retirees' Contributory Death Benefit Plan	<u>27,717,106</u>	<u>26,175,594</u>
Total	\$ 49,743,863	\$ 53,519,605
Net investment return as of the end of the valuation year on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 2,524,065	\$ (155,558)
Local governmental employees	6,621,226	(69,835)
Separate Insurance Benefit Plans	4,495,845	(261,027)
Retirees' Contributory Death Benefit Plan	<u>19,028,009</u>	<u>(280,080)</u>
Total	\$ 32,669,145	\$ (766,500)
Assets held as of the end of the valuation year on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 58,812,369	\$ 49,315,169
Local governmental employees	88,568,566	82,886,234
Separate Insurance Benefit Plans	59,136,649	55,376,104
Retirees' Contributory Death Benefit Plan	<u>271,691,476</u>	<u>253,125,884</u>
Total	\$ 478,209,060	\$ 440,703,391

*Change to accrual accounting



Section 3: Asset Data

The following table shows an allocation of investments by category as of December 31, 2019.

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

Cash and Receivables	3.6%
Fixed Income (LTIF)	96.4
Public Equity	0.0
Other *	<u>0.0</u>
Total	100.0%

* Real Estate, Alternatives, Inflation and Credit.



Section 4: Results of Valuation

Death Benefit Plan for Members of the 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, 2019, shows that the Plan has liabilities of \$169,651,732. Against these liabilities, the Plan has present assets of \$58,812,369. Prospective contributions by the State based on a 0.16% contribution rate have a value of \$256,670,319. The present and prospective assets, which amount to \$315,482,688, exceed the liabilities of \$169,651,732 by \$145,830,956.

Death Benefit Plan for Members of the 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, 2021, 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, 2019, shows that the Plan has total liabilities of \$58,975,706. Against these liabilities, the Plan has present assets of \$88,568,566. Prospective contributions by the participating employers have a value of \$43,141,531. The total present and prospective assets amount to \$131,710,097, which exceeds the liabilities of \$58,975,706 by \$72,734,391.



Section 4: Results of Valuation

Separate Insurance Benefits Plan for Law Enforcement Officers

Benefits payable under the Separate Insurance Benefits Plan are supported by the cost of court as provided in 7A-304(a)(3) of the statutes. However, these contributions have been suspended. The actuarial valuation of the Separate Insurance Benefits Plan for Law Enforcement Officers as of December 31, 2019, shows that the Plan has liabilities of \$37,917,284. Against these liabilities, the Plan has present assets of \$59,136,649. 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.

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, 2019, shows that the Plan has liabilities of \$1,266,494,557. Against these liabilities the Plan has present assets of \$271,691,476. Prospective contributions of participants eligible for benefits have a value of \$967,643,306. The total present and prospective assets amount to \$1,239,334,782, which are less than the liabilities of \$1,266,494,557 by \$27,159,775. 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.



Appendix A: Summary of Plan Provisions

Death Benefit Plan for Members of the Teachers' and State Employees' Retirement System and for Members of the 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.

In accordance with GS 143-166.60(d)(1), the Board has established an accident and sickness disability insurance benefit. The liabilities in this report do not include the accident and sickness disability insurance benefit because they are administered by an insurance company and will only continue to be provided if funds are available.



Appendix A: Summary of Plan Provisions

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 & Methods for TSERS Members

The assumptions described 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. These assumptions were adopted for use beginning with the December 31, 2015, actuarial valuation, based on the experience study prepared as of December 31, 2014, and adopted by the Board of Trustees on April 21, 2016 as updated for the participation assumption change made in 2017.

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: 3.75% per annum, compounded annually.

Inflation: Both general and wage inflation are assumed to be 3.00% per annum.

Real Wage Growth: 0.50% per annum.

Separations From Active Service: Representative values of the assumed rates of separation from active service are as follows:

Annual Rates of Withdrawal								
	General Employees		Teachers, Librarians, and Counselors		Law Enforcement Officers		Other Education	
Service	Male	Female	Male	Female	Male	Female	Male	Female
0	.180	.195	.190	.170	.130	.130	0.190	0.165
1	.155	.170	.160	.145	.100	.100	0.160	0.135
2	.130	.145	.140	.135	.090	.090	0.130	0.120
3	.110	.115	.120	.120	.060	.060	0.115	0.100
4	.090	.100	.095	.100	.060	.060	0.100	0.085

General Employees

Annual Rates

Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.0800	.1100	.0005	.0002	.0002	.0002
30	.0700	.0850	.0005	.0002	.0004	.0004
35	.0525	.0600	.0005	.0003	.0010	.0010
40	.0400	.0450	.0006	.0004	.0030	.0018
45	.0350	.0375	.0010	.0007	.0050	.0032
50	.0350	.0375	.0017	.0011	.0084	.0050
55	.0350	.0375	.0028	.0017	.0144	.0088
60	.0350	.0375	.0047	.0024	.0240	.0138
65			.0083	.0037		
69			.0125	.0057		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Teachers, Librarians and Counselors

Age	Annual Rates					
	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.0800	.0900	.0003	.0001	.0001	.0002
30	.0700	.0750	.0003	.0002	.0001	.0003
35	.0450	.0450	.0004	.0002	.0003	.0006
40	.0350	.0340	.0004	.0003	.0007	.0010
45	.0325	.0325	.0007	.0006	.0014	.0018
50	.0325	.0325	.0012	.0009	.0023	.0032
55	.0325	.0325	.0020	.0014	.0047	.0055
60	.0325	.0325	.0033	.0021	.0077	.0102
65			.0058	.0031		
69			.0092	.0049		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.

Other Education Employees

Age	Annual Rates					
	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.0800	.1200	.0003	.0001	.0002	.0002
30	.0600	.0700	.0003	.0002	.0004	.0004
35	.0450	.0450	.0004	.0002	.0010	.0010
40	.0400	.0400	.0004	.0003	.0030	.0018
45	.0400	.0375	.0007	.0006	.0050	.0032
50	.0400	.0375	.0012	.0009	.0084	.0050
55	.0400	.0375	.0020	.0014	.0144	.0088
60	.0400	.0375	.0033	.0021	.0240	.0138
65			.0058	.0031		
69			.0092	.0049		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Law Enforcement Officers

Annual Rates

Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.0400	.0400	.0005	.0002	.0033	.0033
30	.0350	.0350	.0005	.0002	.0043	.0043
35	.0300	.0300	.0005	.0003	.0060	.0060
40	.0300	.0300	.0006	.0004	.0079	.0079
45	.0400	.0400	.0010	.0007	.0110	.0110
50	.0400	.0400	.0017	.0011	.0176	.0176
55	.0400	.0400	.0028	.0017		
60	.0400	.0400	.0047	.0024		
65			.0083	.0037		
69			.0125	.0057		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.

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

General Employees - Males

Service

Age	5	10	15	20	25	30	35
50				0.0350	0.0800	0.3500	0.2000
55				0.0500	0.1000	0.3500	0.2000
60	0.0850	0.0850	0.0850	0.0850	0.2750	0.3000	0.2250
65	0.2500	0.2750	0.2750	0.2750	0.2750	0.2750	0.2750
70	0.3250	0.2250	0.2250	0.2250	0.2250	0.2250	0.2250
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

General Employees - Females

Service

Age	5	10	15	20	25	30	35
50				0.0350	0.0600	0.4000	0.3000
55				0.0500	0.0800	0.3250	0.2250
60	0.0950	0.0950	0.0950	0.0950	0.2500	0.3000	0.2000
65	0.4000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000
70	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Teachers, Librarians and Counselors - Males

Age	Service						
	5	10	15	20	25	30	35
50				0.0250	0.0650	0.3000	0.3000
55				0.0450	0.0900	0.3250	0.2500
60	0.1200	0.1200	0.1200	0.1200	0.3000	0.2500	0.2500
65	0.3000	0.3250	0.3250	0.3250	0.2000	0.2000	0.2000
70	0.2250	0.2250	0.2250	0.2250	0.2250	0.2250	0.2250
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Teachers, Librarians and Counselors - Females

Age	Service						
	5	10	15	20	25	30	35
50				0.0350	0.0550	0.2750	0.2750
55				0.0600	0.0950	0.4000	0.3000
60	0.1350	0.1350	0.1350	0.1350	0.4500	0.5000	0.3250
65	0.3500	0.3750	0.3750	0.3750	0.3500	0.3500	0.3500
70	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Other Education Employees - Males

Age	Service						
	5	10	15	20	25	30	35
50				0.0350	0.0800	0.3000	0.1500
55				0.0400	0.1000	0.2500	0.2000
60	0.0900	0.0900	0.0900	0.0900	0.2250	0.2500	0.2500
65	0.2750	0.3000	0.3000	0.3000	0.2750	0.2750	0.2750
70	0.2250	0.2250	0.2250	0.2250	0.2250	0.2250	0.2250
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Other Education Employees - Females

Age	Service						
	5	10	15	20	25	30	35
50				0.0400	0.0550	0.3250	0.2250
55				0.0500	0.0900	0.2250	0.2250
60	0.1100	0.1100	0.1100	0.1100	0.2500	0.2500	0.2500
65	0.2500	0.2750	0.2750	0.2750	0.3500	0.3500	0.3500
70	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Law Enforcement Officers

Age	Service					
	5	10	15	20	25	30
50			0.0900	0.0900	0.0900	0.6000
55	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
60	0.2000	0.2000	0.2000	0.2000	0.2000	0.5000
65	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
70	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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

Annual Rate of Salary Increase				
Service	Teachers, Librarians, and Counselors	Other Education Employees	General Employees	Law Enforcement Officers
0	7.55%	7.00%	5.50%	8.10%
5	6.05	6.25	4.50	6.10
10	5.10	5.50	4.00	4.40
15	4.35	4.75	3.50	3.95
20	3.65	4.00	3.50	3.65
25	3.50	3.50	3.50	3.50
30	3.50	3.50	3.50	3.50
35	3.50	3.50	3.50	3.50
40	3.50	3.50	3.50	3.50
45	3.50	3.50	3.50	3.50
50	3.50	3.50	3.50	3.50



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Representative values of the assumed post-retirement mortality rates in 2014 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement (Members Healthy at Retirement)

Age	<u>Teachers & Other Education Employees</u>		<u>General Employees</u>		<u>Law Enforcement Officers</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
55	.0036	.0021	.0062	.0029	.0057	.0036
60	.0048	.0030	.0084	.0042	.0078	.0052
65	.0070	.0051	.0119	.0065	.0110	.0080
70	.0114	.0082	.0181	.0104	.0168	.0129
75	.0196	.0137	.0290	.0170	.0268	.0209
80	.0448	.0329	.0555	.0394	.0447	.0348

Annual Rate of Death after Retirement

(Survivors of Deceased Members and Members Disabled at Retirement)

Age	<u>Male Survivors of Deceased Members</u>	<u>Female Survivors of Deceased Members</u>	<u>Male Retired Members Disabled at Retirement</u>	<u>Female Retired Members Disabled at Retirement</u>
55	.0071	.0045	.0241	.0143
60	.0096	.0064	.0274	.0168
65	.0135	.0099	.0326	.0207
70	.0206	.0158	.0416	.0279
75	.0330	.0258	.0559	.0406
80	.0550	.0429	.0789	.0604

Deaths After Retirement (General Employees): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for male members are multiplied by 108% for ages 50-78 and by 124% for ages greater than 78. Rates for female members are multiplied by 81% for ages 50-78 and by 113% for ages greater than 78. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Teachers and Other Education Employees): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table (with White-Collar Adjustment). Rates for male members are multiplied by 92% for ages 50-78 and by 120% for ages greater than 78. Rates for female members are multiplied by 78% for ages 50-78 and by 108% for ages greater than 78. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with White Collar Adjustment) is used for ages less than 50.



Appendix B: Actuarial Assumptions & Methods for TSERS Members

Deaths After Retirement (Law Enforcement Officers): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Survivors of Deceased Members): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for all members are multiplied by 123% for ages greater than 50. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Death After Retirement (Disabled Members at Retirement): Mortality rates are based on the RP-2014 Total Data Set for Disabled Annuitants Mortality Table. Rates for male members are multiplied by 103% for all ages. Rates for female members are multiplied by 99% for all ages.

Deaths Prior to Retirement: Mortality Rates are based on the RP-2014 Total Data Set Employee Mortality Table for general employees and law enforcement officers. Mortality rates are based on the RP-2014 White Collar Employee Mortality Table for teachers and other education employees.

Mortality Projection: All mortality rates are projected from 2014 using generational improvement with Scale MP-2015.

Benefit Election Assumption: We have assumed that 50% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (65% for those who are disabled at retirement).

Timing of Assumptions: All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur on July 1 of each year.

Changes Since Prior Valuation: None.



Appendix C: Actuarial Assumptions & Methods for LGERS Members

The assumptions described 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. These assumptions were adopted for use beginning with the December 31, 2015, actuarial valuation, based on the experience study prepared as of December 31, 2014, and adopted by the Board of Trustees on April 21, 2016 as updated for the participation assumption change made in 2017.

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: 3.75% per annum, compounded annually.

Inflation: Both general and wage inflation are assumed to be 3.00% per annum.

Real Wage Growth: 0.50% per annum.

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

Annual Rates of Withdrawal						
	<u>General Employees</u>		<u>Firefighters & Rescue Squad Workers</u>		<u>Law Enforcement Officers</u>	
<u>Service</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
0	.1850	.2050	.1300	.1300	.1200	.1200
1	.1550	.1750	.1050	.1050	.0850	.0850
2	.1300	.1500	.0950	.0950	.0800	.0800
3	.1050	.1250	.0850	.0850	.0750	.0750
4	.0850	.1050	.0750	.0750	.0700	.0700

General Employees

<u>Annual Rates</u>						
<u>Age</u>	<u>Withdrawal and Vesting*</u>		<u>Base Mortality**</u>		<u>Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25	.0750	.1000	.0005	.0002	.0004	.0005
30	.0600	.0900	.0005	.0002	.0005	.0005
35	.0450	.0650	.0005	.0003	.0005	.0005
40	.0400	.0500	.0006	.0004	.0030	.0020
45	.0400	.0450	.0010	.0007	.0040	.0030
50	.0400	.0450	.0017	.0011	.0060	.0035
55	.0400	.0450	.0028	.0017	.0080	.0060
60	.0400	.0450	.0047	.0024	.0080	.0060
65			.0083	.0037		
69			.0125	.0057		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.



Appendix C: Actuarial Assumptions & Methods for LGERS Members

Firefighters & Rescue Squad Workers

Annual Rates

<u>Age</u>	<u>Withdrawal and Vesting*</u>		<u>Base Mortality**</u>		<u>Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25	.0350	.0350	.0005	.0002	.0010	.0006
30	.0400	.0400	.0005	.0002	.0010	.0009
35	.0300	.0300	.0005	.0003	.0015	.0024
40	.0250	.0250	.0006	.0004	.0040	.0038
45	.0250	.0250	.0010	.0007	.0055	.0048
50	.0250	.0250	.0017	.0011	.0100	.0076
55	.0250	.0250	.0028	.0017	.0150	.0176
60	.0250	.0250	.0047	.0024	.0150	.0276
65			.0083	.0037		
69			.0125	.0057		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.

Law Enforcement Officers

Annual Rates

<u>Age</u>	<u>Withdrawal and Vesting*</u>		<u>Base Mortality**</u>		<u>Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25	.0500	.0500	.0005	.0002	.0060	.0025
30	.0500	.0500	.0005	.0002	.0010	.0030
35	.0400	.0400	.0005	.0003	.0020	.0040
40	.0300	.0300	.0006	.0004	.0030	.0050
45	.0350	.0350	.0010	.0007	.0400	.0060
50	.0350	.0350	.0017	.0011	.0400	.0070
55	.0350	.0350	.0028	.0017	.0400	.0070
60	.0350	.0350	.0047	.0024	.0400	.0070
65			.0083	.0037		
69			.0125	.0057		

* These rates apply only after five years of membership in the system.

** Base mortality rates as of 2014.



Appendix C: Actuarial Assumptions & Methods for LGERS Members

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

General Employees - Male

Age	Service						
	5	10	15	20	25	30	35
50				0.0300	0.0700	0.2750	0.1500
55				0.0500	0.1000	0.2500	0.1500
60	0.1000	0.1000	0.1000	0.1000	0.2750	0.3000	0.2500
65	0.3000	0.3000	0.3000	0.3000	0.3500	0.3500	0.3500
70	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

General Employees - Female

Age	Service						
	5	10	15	20	25	30	35
50				0.0450	0.0600	0.3000	0.2000
55				0.0600	0.0850	0.3000	0.2000
60	0.1100	0.1100	0.1100	0.1100	0.3000	0.3500	0.2500
65	0.3500	0.3500	0.3500	0.3500	0.3500	0.3500	0.3500
70	0.1500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Firefighters & Rescue Squad Workers

Age	Service						
	5	10	15	20	25	30	35
50				0.0250	0.0850	0.3250	0.3250
55	0.0250	0.0250	0.0250	0.0250	0.1300	0.5000	0.2750
60	0.0575	0.0575	0.0575	0.0575	0.3250	0.3250	0.3250
65	0.3250	0.3250	0.3250	0.3250	0.3250	0.3250	0.3250
70	0.3250	0.3250	0.3250	0.3250	0.3250	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			0.0800	0.0800	0.0800	0.4000	0.4000
55	0.1000	0.3250	0.3250	0.3250	0.3250	0.7500	0.4000
60	0.1000	0.2000	0.2000	0.2000	0.2000	0.2250	0.2000
65	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000	0.3000
70	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Appendix C: Actuarial Assumptions & Methods for LGERS Members

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

<u>Service</u>	<u>Annual Rate of Salary Increase</u>		
	<u>General Employees</u>	<u>Firefighters & Rescue Squad Workers</u>	<u>Enforcement Officers</u>
0	7.75%	7.75%	7.35%
5	6.00	6.00	6.15
10	4.95	4.85	5.15
15	4.20	4.10	4.45
20	3.75	3.50	4.02
25	3.50	3.50	3.90
30	3.50	3.50	3.80
35	3.50	3.50	3.70
40	3.50	3.50	3.50
45	3.50	3.50	3.50
50	3.50	3.50	3.50

Post-Retirement Mortality: Representative values of the assumed post-retirement mortality rates as of 2014 prior to any mortality improvements are as follows:

<u>Annual Rate of Death after Retirement</u>						
(Members Healthy at Retirement)						
<u>Age</u>	<u>General Employees</u>		<u>Firefighters & Rescue Squad Workers</u>		<u>Law Enforcement Officers</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
55	.0066	.0029	.0057	.0036	.0060	.0038
60	.0089	.0041	.0078	.0052	.0081	.0054
65	.0127	.0064	.0110	.0080	.0115	.0084
70	.0193	.0102	.0168	.0129	.0174	.0134
75	.0309	.0165	.0268	.0209	.0279	.0218
80	.0604	.0404	.0447	.0348	.0465	.0362



Appendix C: Actuarial Assumptions & Methods for LGERS Members

Annual Rate of Death after Retirement

(Survivors of Deceased Members and Members Disabled at Retirement)

Age	Male Survivors of Deceased Members	Female Survivors of Deceased Members	Male Retirees Disabled at Retirement	Female Retirees Disabled at Retirement
55	.0071	.0045	.0241	.0143
60	.0096	.0064	.0274	.0168
65	.0135	.0099	.0326	.0207
70	.0206	.0158	.0416	.0279
75	.0330	.0258	.0559	.0406
80	.0550	.0429	.0789	.0604

Deaths After Retirement (General Employees): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for male members are multiplied by 115% for ages 50-78 and by 135% for ages greater than 78. Rates for female members are multiplied by 79% for ages 50-78 and by 116% for ages greater than 78. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Firefighters and Rescue Squad Workers): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Law Enforcement Officers): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for all members are multiplied by 104% for ages greater than 50. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Survivors of Deceased Members): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. Rates for all members are multiplied by 123% for ages greater than 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Disabled Members at Retirement): Mortality rates are based on the RP-2014 Total Data Set for Disabled Annuitants Mortality Table. Rates for male members are multiplied by 103% for all ages. Rates for female members are multiplied by 99% for all ages.

Deaths Prior to Retirement: Mortality rates are based on the RP-2014 Total Data Set Employee Mortality Table.

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.

Mortality Projection: All mortality rates are projected from 2014 using generational improvement with Scale MP-2015.

Benefit Election Assumption: We have assumed that 50% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (65% 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.

Changes Since Prior Valuation: None.



Appendix D: Actuarial Assumptions & Methods for CJRS Members

The assumptions described 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. These assumptions were adopted for use beginning with the December 31, 2015, actuarial valuation, based on the experience study prepared as of December 31, 2014, and adopted by the Board of Trustees on April 21, 2016 as updated for the participation assumption change made in 2017.

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: 3.75% per annum, compounded annually.

Inflation: General inflation is assumed to be 3.00% per annum.

Withdrawal: No termination of employment is assumed to occur prior to retirement, other than death or disability.

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

Annual Rate of			
Age	Disability	Base Mortality*	
	Male & Female	Male	Female
25	.0001	.0005	.0002
30	.0001	.0005	.0002
35	.0003	.0005	.0003
40	.0007	.0006	.0004
45	.0014	.0010	.0007
50	.0023	.0017	.0011
55	.0047	.0028	.0017
60	.0077	.0047	.0024
64	.0098	.0074	.0034

* Base mortality rates as of 2014.

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

Age*	Service					
	5	10	15	20	25	30
50					.150	.150
55	.025	.025	.025	.025	.150	.150
60	.025	.025	.025	.025	.125	.125
65	.100	.100	.100	.100	.100	.100
70	.500	.500	.500	.500	.500	.500

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



Appendix D: Actuarial Assumptions & Methods for CJRS Members

Deaths After Retirement: Representative values of the assumed post-retirement mortality rates in 2014 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement (Retired Members and Survivors of Deceased Members)						
Age	Retirees (Healthy at Retirement)		Survivors of Deceased Members		Retirees (Disabled at Retirement)	
	Male	Female	Male	Female	Male	Female
55	.0057	.0036	.0057	.0036	.0234	.0145
60	.0078	.0052	.0078	.0052	.0266	.0170
65	.0110	.0080	.0110	.0080	.0317	.0209
70	.0168	.0129	.0168	.0129	.0403	.0282
75	.0268	.0209	.0268	.0209	.0543	.0410
80	.0447	.0348	.0447	.0348	.0766	.0610

Deaths After Retirement (Healthy Members at Retirement and Survivors of Deceased Members): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Disabled Members at Retirement): Mortality rates are based on the RP-2014 Total Data Set for Disabled Annuitants Mortality Table.

Deaths Prior to Retirement: Mortality rates are based on the RP-2014 Total Data Set Employee Mortality Table.

Mortality Projection: All mortality rates are projected from 2014 using generational improvement with Scale MP-2015.

Benefit Election Assumption: We have assumed that 50% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (65% 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.

Changes Since Prior Valuation: None.



Appendix E: Actuarial Assumptions & Methods for LRS Members

The assumptions described 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. These assumptions were adopted for use beginning with the December 31, 2015, actuarial valuation, based on the experience study prepared as of December 31, 2014, and adopted by the Board of Trustees on April 21, 2016 as updated for the participation assumption change made in 2017.

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: 3.75% per annum, compounded annually.

Inflation: General inflation is assumed to be 3.00% per annum.

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

Age	Annual Rate of			
	Disability	Base Mortality		Withdrawal
		Male	Female	
25	.0001	.0005	.0020	.0500
30	.0004	.0005	.0020	.0500
35	.0010	.0005	.0030	.0500
40	.0029	.0006	.0040	.0500
45	.0049	.0010	.0070	.0500
50	.0084	.0017	.0011	.0500
55	.0144	.0028	.0017	.0500
60		.0047	.0024	.0500
64		.0074	.0034	.0500

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

Age	Service					
	5	10	15	20	25	30
60	.100	.100	.100	.100	.100	.100
65	.250	.250	.250	.250	.250	.250
70	.150	.150	.150	.150	.150	.150
75	1.000	1.000	1.000	1.000	1.000	1.000



Appendix E: Actuarial Assumptions & Methods for LRS Members

Deaths After Retirement: Representative values of the assumed post-retirement mortality rates in 2014 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement (Retired Members and Survivors of Deceased Members)						
	Retirees (Healthy at Retirement)		Survivors of Deceased Members		Retirees (Disabled at Retirement)	
Age	Male	Female	Male	Female	Male	Female
55	.0057	.0036	.0057	.0036	.0234	.0145
60	.0078	.0052	.0078	.0052	.0266	.0170
65	.0110	.0080	.0110	.0080	.0317	.0209
70	.0168	.0129	.0168	.0129	.0403	.0282
75	.0268	.0209	.0268	.0209	.0543	.0410
80	.0447	.0348	.0447	.0348	.0766	.0610

Deaths After Retirement (Healthy Members at Retirement and Survivors of Deceased Members): Mortality rates are based on the RP-2014 Total Data Set for Healthy Annuitants Mortality Table. The RP-2014 annuitant tables have no rates prior to age 50. The RP-2014 Total Data Set Employee Mortality Table (with no adjustments) is used for ages less than 50.

Deaths After Retirement (Disabled Members at Retirement): Mortality rates are based on the RP-2014 Total Data Set for Disabled Annuitants Mortality Table.

Deaths Prior to Retirement: Mortality rates are based on the RP-2014 Total Data Set Employee Mortality Table.

Mortality Projection: All mortality rates are projected from 2014 using generational improvement with Scale MP-2015.

Benefit Election Assumption: We have assumed that 50% of members not currently retired elect coverage under the Retirees' Contributory Death Benefit Plan at retirement (65% 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.

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, 2021.

Employer Code	Employer	Contribution Rate
90001	Yancey County	0.08%
90011	Burnsville, Town of	0.09%
90092	Martin-Tyrrell-Washington Dist Health Dept	0.04%
90096	Albemarle Regional Health Services	0.07%
90098	Toe River Health District	0.06%
90099	Appalachian District Health Dept	0.03%
90101	Alamance County	0.05%
90111	Burlington, City of	0.07%
90117	Alamance Municipal A.B.C. Board	0.20%
90131	Elon, Town of	0.04%
90201	Alexander County	0.06%
90203	Alexander County Health Dept	0.04%
90205	Alexander County Public Library	0.08%
90206	Alexander County Dept of S S	0.05%
90301	Alleghany County	0.06%
90305	Northwestern Regional Library	0.11%
90401	Anson County	0.08%
90411	Wadesboro, Town of	0.08%
90413	Wadesboro Housing Authority	0.07%
90417	Wadesboro A.B.C. Board	0.15%
90421	Lilesville, Town of	0.04%
90431	Polkton, Town of	0.19%
90501	Ashe County	0.06%
90601	Avery County	0.09%
90605	Avery-Mitchell-Yancey Reg Library	0.11%
90617	High Country A.B. C. Board	0.06%
90701	Beaufort County	0.05%
90704	Beaufort County A.B.C. Board	0.22%
90705	B.H.M. Regional Library	0.14%
90709	Mideast Commission	0.05%
90711	Washington, City of	0.06%
90721	Aurora, Town of	0.16%
90804	Bertie County A.B.C. Board	0.14%
90805	Albemarle Regional Library	0.16%
90808	Bertie-Martin Regional Jail Comm	0.06%



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, 2021.

Employer Code	Employer	Contribution Rate
90811	Aulander, Town of	0.08%
90813	Colerain, Town of	0.23%
90901	Bladen County	0.07%
90911	Elizabethtown, Town of	0.08%
90918	South Eastern Economic Development Comm	0.02%
90921	White Lake, Town of	0.11%
90931	Clarkton, Town pf	0.06%
91001	Brunswick County	0.05%
91003	Brunswick Co Health Dept	0.04%
91006	Brunswick Co Dept of Social Services	0.04%
91011	Southport, City of	0.09%
91013	Southeast Brunswick Sanitary District	0.10%
91017	Southport A.B.C. Board	0.27%
91021	Oak Island, Town of	0.08%
91027	Oak Island A.B.C. Bd	0.20%
91041	Sunset Beach, Town of	0.04%
91047	Sunset Beach A.B.C. Board	0.37%
91057	Shallotte A.B.C. Board	0.16%
91061	Ocean Isle Beach, Town of	0.07%
91067	Ocean Isle Beach A.B.C.	0.12%
91071	Boiling Spring Lakes, City of	0.07%
91091	Bald Head Island, Village of	0.06%
91101	Buncombe County	0.04%
91102	Land-of-Sky Regional Council	0.06%
91107	Western NC Regional Air Quality	0.05%
91108	Metro Sewerage Dist of Buncombe County	0.05%
91109	Woodfin Sanitary Water and Sewer Dist	0.04%
91127	Asheville A.B.C. Board	0.09%
91128	Asheville Regional Airport Authority	0.06%
91141	Weaverville, Town of	0.12%
91151	Black Mountain, Town of	0.04%
91154	Black Mountain A.B.C. Board	0.18%
91161	Montreat, Town of	0.07%
91201	Burke County	0.06%
91203	Burke Co Health Dept	0.06%



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, 2021.

Employer Code	Employer	Contribution Rate
91206	Burke Co Dept of Social Services	0.05%
91211	Valdese, Town of	0.06%
91217	Morganton A.B.C. Board	0.27%
91221	Drexel, Town of	0.04%
91233	Morganton Housing Authority	0.05%
91241	Glen Alpine, Town of	0.09%
91301	Cabarrus County	0.05%
91302	Water & Sewer Auth of Cabarrus County	0.04%
91306	Cabarrus Co Public Health Auth	0.03%
91311	Concord, City of	0.04%
91317	Concord A.B.C. Board	0.12%
91331	Kannapolis, City of	0.04%
91401	Caldwell County	0.05%
91411	Granite Falls, Town of	0.06%
91417	Granite Falls A.B.C. Board	0.21%
91423	Lenoir Housing Authority	0.05%
91451	Lenoir, City of	0.15%
91501	Camden County	0.11%
91504	Camden County A.B.C. Board	0.26%
91601	Carteret County	0.08%
91604	Carteret County A.B.C. Board	0.18%
91611	Morehead City, Town of	0.05%
91631	Beaufort, Town of	0.06%
91641	Pine Knoll Shores, Town of	0.04%
91671	Cape Carteret, Town of	0.06%
91681	Atlantic Beach, Town of	0.13%
91701	Caswell County	0.09%
91704	Caswell County A.B.C. Board	0.28%
91706	Caswell Co Dept of Social Services	0.07%
91719	Yanceyville, Town of	0.03%
91801	Catawba County	0.04%
91804	Catawba County A.B.C. Board	0.23%
91811	Hickory, City of	0.05%
91813	Hickory Public Housing Authority	0.04%
91819	Western Piedmont Regional Transit Authority	0.25%



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, 2021.

Employer Code	Employer	Contribution Rate
91821	Claremont, City of	0.05%
91831	Maiden, Town of	0.05%
91841	Longview, Town of	0.05%
91851	Conover, Town of	0.08%
91871	Newton, City of	0.06%
91901	Chatham County	0.05%
91904	Chatham County ABC Board	0.20%
91911	Siler City, Town of	0.05%
91917	Siler City A.B.C. Board	0.08%
91921	Pittsboro, Town of	0.06%
92001	Cherokee County	0.10%
92005	Nantahala Regional Library	0.13%
92011	Murphy, Town of	0.09%
92017	Murphy A.B.C. Board	0.05%
92101	Chowan County	0.07%
92104	Chowan County A.B.C. Board	0.18%
92109	Albemarle Regional Planning & Development Comm	0.03%
92111	Edenton, Town of	0.06%
92113	New Edenton Housing Auth	0.15%
92201	Clay County	0.07%
92301	Cleveland County	0.05%
92311	Shelby, City of	0.06%
92317	Shelby A.B.C. Board	0.10%
92327	Kings Mountain A.B.C. Board	0.24%
92331	Boiling Springs, Town of	0.14%
92351	Grover, Town of	0.09%
92401	Columbus County	0.09%
92411	Whiteville, City of	0.09%
92417	Whiteville A.B.C. Board	0.06%
92427	Lake Waccamaw A.B.C. Board	0.25%
92501	Craven County	0.06%
92504	Craven Co A.B.C. Bd	0.12%
92505	Craven-Pamlico-Carteret Regional Library	0.18%
92506	Coastal Carolina Regional Airport	0.30%
92507	Neuse River Council of Governments	0.02%



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, 2021.

Employer Code	Employer	Contribution Rate
92508	Coastal Regional Solid Waste Mngt Auth	0.07%
92511	New Bern, City of	0.06%
92513	Trillium Health Resources	0.04%
92521	Trent Woods, Town of	0.08%
92531	Havelock, City of	0.06%
92601	Cumberland County	0.05%
92604	Cumberland Co A.B.C. Board	0.07%
92607	Mid-Carolina Council Of Governments	0.05%
92611	Fayetteville, City of	0.06%
92613	Fayetteville Metropolitan Housing Auth	0.07%
92631	Hope Mills, Town of	0.05%
92661	Spring Lake, Town of	0.08%
92681	Eastover, Town of	0.05%
92701	Currituck County	0.06%
92801	Dare County	0.06%
92802	Dare County Tourism Board	0.05%
92804	Dare County A.B.C. Board	0.09%
92811	Nags Head, Town of	0.05%
92821	Kill Devil Hills, Town of	0.07%
92831	Manteo, Town of	0.17%
92841	Southern Shores, Town of	0.04%
92851	Kitty Hawk, Town of	0.12%
92901	Davidson County	0.07%
92911	Thomasville, City of	0.08%
92917	Lexington A.B.C. Board	0.26%
92931	Lexington, City of	0.06%
93001	Davie County	0.05%
93011	Mocksville, Town of	0.08%
93101	Duplin County	0.09%
93108	Eastpointe Human Services	0.05%
93111	Beulaville, Town of	0.06%
93121	Kenansville, Town of	0.07%
93131	Warsaw, Town of	0.35%
93141	Faison, Town of	0.09%
93161	Rose Hill, Town of	0.11%



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, 2021.

Employer Code	Employer	Contribution Rate
93201	Durham County	0.04%
93204	Durham County A.B.C. Board	0.10%
93219	Triangle J Council of Governments	0.04%
93301	Edgecombe County	0.09%
93304	Edgecombe County A.B.C. Board	0.17%
93305	Edgecombe County Memorial Library	0.09%
93309	Upper Coastal Plain Council of Governements	0.06%
93311	Tarboro, Town of	0.05%
93317	Tarboro Redevelopment Commission	0.06%
93321	Rocky Mount, City of	0.05%
93323	Rocky Mount-Wilson Airport Authority	0.04%
93331	Pinetops, Town of	0.09%
93341	Macclesfield, Town of	0.05%
93406	Piedmont Triad Regional Council	0.14%
93413	Winston-Salem Housing Authority	0.07%
93417	Triad Municipal A.B.C. Board	0.14%
93431	Rural Hall, Town of	0.05%
93501	Franklin County	0.08%
93517	Franklinton A.B.C Board	0.26%
93521	Louisburg, Town of	0.07%
93527	Louisburg A.B.C. Board	0.15%
93601	Gaston County	0.04%
93602	Stanley, Town of	0.07%
93609	Partners Behavioral Health Management	0.04%
93610	Mcadenville, Town of	0.04%
93617	Gastonia A.B.C. Board	0.46%
93631	Cramerton, Town of	0.20%
93641	Cherryville, City of	0.11%
93671	Bessemer City, City of	0.18%
93691	Mount Holly, City of	0.06%
93701	Gates County	0.06%
93704	Gates County A.B.C. Board	0.24%
93803	Graham Co Health Dept	0.04%
93806	Graham County Dept of S S	0.04%
93821	Robbinsville, Town of	0.10%



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, 2021.

Employer Code	Employer	Contribution Rate
93901	Granville County	0.06%
93904	Granville Co A.B.C. Bd	0.22%
93906	Granville County Hospital	0.04%
93908	Granville-Vance Public Health	0.04%
93910	South Granville Water and Sewer Authority	0.16%
93911	Oxford, City of	0.08%
93913	Oxford Housing Authority	0.07%
93914	Stovall, Town of	0.74%
93931	Butner, Town of	0.13%
94001	Greene County	0.07%
94004	Greene County A.B.C. Board	0.15%
94005	Neuse Regional Library-Greene County	0.30%
94011	Hookerton, Town of	0.07%
94101	Guilford County	0.05%
94111	Greensboro, City of	0.06%
94112	Piedmont Triad Reg Water Auth	0.05%
94117	Greensboro A.B.C. Bd	0.10%
94121	High Point, City of	0.06%
94127	High Point A.B.C. Bd	0.15%
94131	Jamestown, Town of	0.05%
94151	Gibsonville, Town of	0.08%
94172	Summerfield Fire District	0.03%
94201	Halifax County	0.06%
94204	Halifax County A.B.C. Board	0.12%
94205	Halifax County Tourism Development Authority	0.11%
94209	Roanoke Rapids Sanitary District	0.06%
94211	Enfield, Town of	0.15%
94221	Roanoke Rapids, City of	0.08%
94231	Weldon, Town of	0.15%
94241	Scotland Neck, Town of	0.15%
94251	Hobgood, Town of	0.03%
94301	Harnett County	0.06%
94311	Dunn, City of	0.07%
94313	Dunn Housing Authority	0.09%
94317	Dunn A.B.C. Board	0.01%



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, 2021.

Employer Code	Employer	Contribution Rate
94321	Lillington, Town of	0.04%
94331	Erwin, Town of	0.10%
94341	Coats, Town of	0.06%
94347	Angier A.B.C. Board	0.10%
94401	Haywood County	0.06%
94408	Junaluska Sanitary District	0.06%
94411	Waynesville, Town of	0.07%
94412	Waynesville A.B.C. Board	0.32%
94431	Canton, Town of	0.07%
94501	Henderson County	0.05%
94511	Hendersonville, City of	0.05%
94521	Laurel Park, Town of	0.06%
94527	Laurel Park A.B.C. Board	0.07%
94532	Blue Ridge Fire Department	0.04%
94551	Mills River, Town of	0.09%
94601	Hertford County	0.08%
94604	Hertford County A.B.C. Board	0.11%
94611	Ahoskie, Town of	0.15%
94631	Winton, Town of	0.17%
94701	Hoke County	0.08%
94704	Hoke County A.B.C. Board	0.14%
94711	Raeford, Town of	0.10%
94801	Hyde County	0.07%
94812	Ocracoke Sanitary Dist	0.15%
94901	Iredell County	0.06%
94911	Statesville, City of	0.06%
94917	Statesville A.B.C. Board	0.15%
94921	Mooresville, City of	0.05%
94923	Mooresville Housing Authority	0.07%
94927	Mooresville A.B.C. Board	0.10%
94931	Troutman, Town of	0.18%
95001	Jackson County	0.07%
95002	Tuckaseegee Water Authority	0.08%
95005	Fontana Regional Library	0.11%
95008	Southwestern NC Planning & Econ Dev Comm	0.07%



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, 2021.

Employer Code	Employer	Contribution Rate
95009	Vaya Health	0.05%
95011	Sylva, Town of	0.05%
95017	Jackson County A.B.C. Board	0.08%
95101	Johnston County	0.04%
95104	Johnston County A.B.C. Board	0.15%
95105	Public Library of Johnston Co and Smithfield	0.04%
95106	Archer Lodge, Town of	0.18%
95110	Johnston Health Center	0.10%
95111	Smithfield, Town of	0.06%
95121	Selma, Town of	0.07%
95123	Selma Housing Authority	0.05%
95131	Clayton, Town of	0.05%
95141	Benson, Town of	0.05%
95201	Jones County	0.05%
95204	Jones County A.B.C. Board	0.42%
95205	Neuse Regional Library-Jones County	0.32%
95211	Pollocksville, Town of	0.70%
95301	Lee County	0.09%
95317	Sanford A.B.C. Board	0.15%
95321	Broadway, Town of	0.13%
95401	Lenoir County	0.07%
95404	Lenoir County A.B.C. Board	0.09%
95405	Neuse Regional Library	0.04%
95411	Kinston, City of	0.09%
95413	Kinston Housing Authority	0.07%
95415	Kinston-Lenoir Co Pub Library	0.11%
95421	Pink Hill, Town of	0.05%
95431	Lagrange, Town of	0.04%
95501	Lincoln County	0.07%
95511	Lincolnton, City of	0.07%
95513	Lincolnton Housing Authority	0.11%
95517	Lincolnton A.B.C. Board	0.15%
95601	Macon County	0.08%
95611	Franklin, Town of	0.07%
95617	Highlands A.B.C. Board	0.31%



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, 2021.

Employer Code	Employer	Contribution Rate
95701	Madison County	0.09%
95711	Mars Hill, Town of	0.06%
95721	Marshall, Town of	0.11%
95801	Martin County	0.08%
95802	Martin Co Travel & Tourism Auth	0.02%
95804	Martin County A.B.C. Board	0.04%
95813	Williamston Housing Authority	0.11%
95831	Hamilton, Town of	0.19%
95901	McDowell County	0.07%
95911	Marion, Town of	0.08%
96001	Mecklenburg County	0.04%
96004	Mecklenburg County A.B.C. Board	0.10%
96005	Charlotte Mecklenburg Public Library	0.04%
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	0.13%
96071	Matthews, Town of	0.05%
96081	Davidson, Town of	0.09%
96101	Mitchell County	0.16%
96111	Spruce Pine, Town of	0.11%
96201	Montgomery County	0.08%
96204	Montgomery-Municipal A.B.C. Board	0.12%
96251	Mount Gilead, Town of	0.07%
96301	Moore County	0.05%
96304	Moore County A.B.C. Board	0.18%
96305	Moore County Tourism Development Authority	0.16%
96310	Moore County Airport Authority	0.13%
96311	Southern Pines, Town of	0.05%
96321	Vass, Town of	0.07%
96331	Aberdeen, Town of	0.06%
96351	Pinehurst, Village of	0.06%
96361	Pinebluff, Town of	0.19%
96371	Whispering Pines, Village of	0.08%
96381	Foxfire Village	0.09%



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, 2021.

Employer Code	Employer	Contribution Rate
96401	Nash County	0.05%
96404	Nash County A.B.C. Board	0.12%
96421	Nashville, Town of	0.07%
96431	Middlesex, Town of	0.15%
96501	New Hanover County	0.05%
96502	New Hanover Airport Auth	0.06%
96504	New Hanover County A.B.C. Board	0.25%
96508	Lower Cape Fear Water & Sewer Auth	0.32%
96511	Wrightsville Beach, Town of	0.06%
96541	Kure Beach, Town of	0.16%
96601	Northampton County	0.07%
96604	Northampton County A.B.C. Board	0.34%
96701	Onslow County	0.05%
96704	Onslow County A.B.C. Board	0.11%
96708	Onslow Water & Sewer Authority	0.13%
96711	Jacksonville, City of	0.06%
96721	Swansboro, Town of	0.08%
96731	Holly Ridge, Town of	0.05%
96751	North Topsail Beach, Town of	0.18%
96801	Orange County	0.05%
96804	Orange County A.B.C. Board	0.07%
96808	Orange Water and Sewer Authority	0.04%
96811	Chapel Hill, Town of	0.06%
96821	Carrboro, Town of	0.06%
96831	Hillsborough, Town of	0.05%
96901	Pamlico County	0.07%
96918	Bay River Metro Sewerage District	0.19%
97001	Pasquotank County	0.08%
97002	Pasquotank-Camden Ambulance Service	0.04%
97004	Pasquotank Co A.B.C. Board	0.09%
97005	East Albemarle Regional Library	0.06%
97011	Elizabeth City	0.06%
97015	Pasquotank-Camden Library	0.10%
97018	Elizabeth City-Pasquotank Co Industrial Development	0.05%
97101	Pender County	0.05%



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, 2021.

Employer Code	Employer	Contribution Rate
97104	Pender County A.B.C. Board	0.12%
97121	Topsail Beach, Town of	0.15%
97131	Surf City, Town of	0.04%
97201	Perquimans County	0.07%
97211	Hertford, Town of	0.07%
97217	Hertford A.B.C. Board	0.32%
97301	Person County	0.06%
97304	Person Co A.B.C. Bd	0.24%
97311	Roxboro, City of	0.08%
97401	Pitt County	0.05%
97404	Pitt County A.B.C. Board	0.05%
97405	Sheppard Memorial Library	0.11%
97408	Contentnea Metropolitan Sewerage Dist	0.07%
97411	Greenville, City of	0.05%
97412	Greenville Utilities Commission	0.04%
97413	Greenville Housing Authority	0.06%
97421	Farmville, Town of	0.05%
97431	Grifton, Town of	0.12%
97441	Bethel, Town of	0.10%
97451	Winterville, Town of	0.05%
97471	Grimesland, Town of	0.19%
97501	Polk County	0.08%
97511	Tryon, Town of	0.11%
97531	Saluda, City of	0.03%
97601	Randolph County	0.05%
97611	Asheboro, City of	0.07%
97613	Asheboro Housing Authority	0.14%
97621	Randleman, City of	0.06%
97623	Randleman Housing Authority	0.08%
97627	Randleman A.B.C. Board	0.04%
97631	Liberty, Town of	0.06%
97651	Archdale, City of	0.09%
97701	Richmond County	0.06%
97705	Sandhill Regional Library	0.09%
97711	Rockingham, City of	0.08%



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, 2021.

Employer Code	Employer	Contribution Rate
97713	Rockingham Authority	0.06%
97717	Hamlet A.B.C. Board	0.07%
97721	Hamlet, City of	0.08%
97727	Rockingham A.B.C. Board	0.12%
97801	Robeson County	0.05%
97802	Lumber River Council of Governments	0.03%
97803	Robeson County Housing Authority	0.17%
97805	Robeson County Public Library	0.07%
97811	Lumberton, City of	0.08%
97821	Fairmont, Town of	0.17%
97823	Fairmont Housing Authority	0.06%
97831	St Pauls, Town of	0.06%
97840	Maxton, Town of	0.10%
97847	Maxton A.B.C. Board	0.18%
97851	Pembroke, Town of	0.11%
97861	Rowland, Town of	0.25%
97871	Red Springs, Town of	0.10%
97901	Rockingham County	0.05%
97911	Reidsville, City of	0.09%
97913	New Reidsville Housing Auth	0.15%
97917	Reidsville A.B.C. Board	0.07%
97921	Mayodan, Town of	0.15%
97941	Madison, Town of	0.07%
98001	Rowan County	0.06%
98004	Rowan County A.B.C. Board	0.18%
98011	Salisbury, City of	0.06%
98021	East Spencer, Town of	0.17%
98023	East Spencer Housing Authority	0.04%
98031	Spencer, Town of	0.09%
98041	China Grove, Town of	0.06%
98061	Granite Quarry, Town of	0.03%
98091	Cleveland, Town of	0.05%
98101	Rutherford County	0.06%
98102	Broad River Water Authority	0.05%
98103	Rutherford Polk McDowell Dist Brd of Health	0.05%



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, 2021.

Employer Code	Employer	Contribution Rate
98109	Isothermal Planning and Dev Comm	0.08%
98111	Forest City, Town of	0.06%
98121	Spindale, Town of	0.09%
98141	Rutherfordton, Town of	0.08%
98201	Sampson County	0.05%
98205	J C Holiday Mem Library	0.04%
98211	Clinton, City of	0.06%
98218	Clinton A.B.C. Board	0.06%
98221	Salemburg, Town of	0.04%
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	0.03%
98301	Scotland County	0.07%
98304	Scotland County A.B.C. Board	0.13%
98311	Laurinburg, City of	0.05%
98313	Laurinburg Housing Authority	0.13%
98321	Wagram, Town of	0.07%
98401	Stanly County	0.07%
98411	Albemarle, City of	0.06%
98414	Village of Misenheimer	0.21%
98421	Norwood, Town of	0.17%
98451	Badin, Town of	0.09%
98501	Stokes County	0.07%
98511	Walnut Cove, Town of	0.07%
98521	King, City of	0.05%
98601	Surry County	0.10%
98611	Pilot Mountain, Town of	0.10%
98621	Dobson, Town of	0.08%
98631	Mount Airy, City of	0.16%
98637	Mount Airy Alcoholic Board of Control	0.13%
98641	Elkin, Town of	0.08%
98701	Swain County	0.08%
98711	Bryson City, Town of	0.07%



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, 2021.

Employer Code	Employer	Contribution Rate
98717	Bryson City A.B.C. Board	0.09%
98801	Transylvania County	0.07%
98811	Brevard, City of	0.07%
98901	Tyrrell County	0.10%
98904	Tyrrell Co A.B.C. Board	0.07%
99001	Union County	0.05%
99011	Monroe, City of	0.06%
99013	Monroe Housing Authority	0.13%
99014	Indian Trail A.B.C. Board	0.21%
99017	Monroe A.B.C. Board	0.11%
99021	Marshville, Town of	0.08%
99031	Wingate, Town of	0.11%
99041	Waxhaw, Town of	0.05%
99051	Indian Trail, Town of	0.05%
99071	Weddington, Town of	0.10%
99101	Vance County	0.07%
99109	Kerr-Tar Regional Council of Govts	0.05%
99111	Henderson, City of	0.08%
99201	Wake County	0.04%
99202	Holly Springs, Town of	0.04%
99203	Rolesville, Town of	0.12%
99204	Wake County A.B.C. Board	0.06%
99206	Morrisville, Town of	0.04%
99213	Raleigh Housing Authority	0.07%
99218	Raleigh-Durham Airport Authority	0.05%
99221	Cary, Town of	0.04%
99222	Centennial Authority	0.03%
99231	Wendell, Town of	0.05%
99241	Zebulon, Town of	0.03%
99251	Garner, Town of	0.04%
99252	Garner Fire Dept	0.02%
99261	Fuquay-Varina, Town of	0.05%
99271	Apex, Town of	0.04%
99281	Wake Forest, Town of	0.09%
99291	Knightdale, Town of	0.02%



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, 2021.

Employer Code	Employer	Contribution Rate
99301	Warren County	0.08%
99401	Washington County	0.09%
99404	Washington County A.B.C. Board	0.12%
99405	Pettigrew Regional Library	0.11%
99411	Plymouth, Town of	0.12%
99413	Plymouth Housing Authority	0.09%
99431	Creswell, Town of	0.04%
99501	Watauga County	0.09%
99511	Boone, Town of	0.06%
99521	Blowing Rock, Town of	0.04%
99601	Wayne County	0.07%
99602	Fork Township Sanitary Dist	0.02%
99604	Wayne County A.B.C. Board	0.14%
99609	Southern Wayne Sanitary District	0.05%
99610	Eastern Wayne Sanitary Dist	0.15%
99611	Goldsboro, City of	0.06%
99613	Goldsboro Housing Authority	0.06%
99701	Wilkes County	0.05%
99711	North Wilkesboro, Town of	0.11%
99717	North Wilkesboro A.B.C. Board	0.09%
99721	Wilkesboro, Town of	0.06%
99801	Wilson County	0.05%
99804	Wilson County A.B.C. Board	0.09%
99811	Wilson, City of	0.04%
99841	Lucama, Town of	0.06%
99901	Yadkin County	0.07%
99911	Yadkinville, Town of	0.06%
99921	Jonesville, Town of	0.21%
99931	East Bend, Town of	0.10%
99991	N C Assoc of Co Commissioners	0.04%
99999	N C League of Municipalities	0.04%