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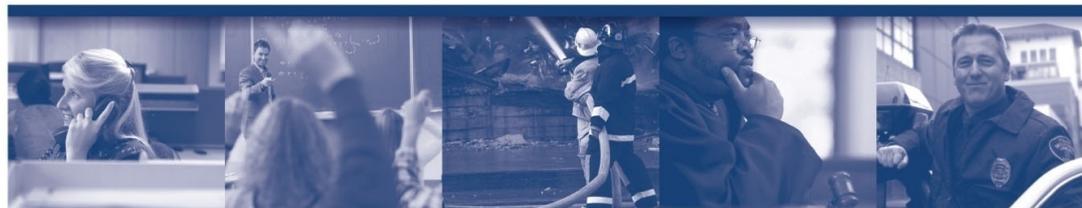
*The experience and dedication you deserve*

# **Death Benefit Plans Principal Results of Actuarial Valuation as of December 31, 2020**

## **October 28, 2021 Board of Trustees Meeting**

**Larry Langer, ASA, FCA, EA, MAAA**

**Wendy Ludbrook, FSA, FCA, EA, MAAA**



# 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	12/31/2020	12/31/2019
<b>Teachers' and State Employees' Retirement System Death Benefit Plan</b>		
Liabilities	\$ 161,030,193	\$ 169,651,732
Current Assets	64,613,302	58,812,369
Present Value of Future Contributions	209,616,804	256,670,319
Surplus / (Deficit)	113,199,913	145,830,956
<b>Local Governmental Employees' Retirement System Death Benefit Plan</b>		
Liabilities	\$ 53,469,194	\$ 58,975,706
Current Assets	96,572,606	88,568,566
Present Value of Future Contributions	40,511,754	43,141,531
Surplus / (Deficit)	83,615,166	72,734,391
<b>Separate Insurance Benefits Plan for Law Enforcement Officers</b>		
Liabilities	\$ 47,259,735	\$ 37,917,284
Current Assets	64,324,534	59,136,649
Present Value of Future Contributions	0	0
Surplus / (Deficit)	17,064,799	21,219,365
<b>Retirees' Contributory Death Benefit Plan</b>		
Liabilities	\$ 1,481,794,308	\$ 1,266,494,557
Current Assets	296,209,705	271,691,476
Present Value of Future Contributions	1,052,703,904	967,643,306
Surplus / (Deficit)	(132,880,699)	(27,159,775)

The deficit for the Retirees' Contributory Death Benefit Plan increased from last year primarily due to the assumption changes from the experience study.

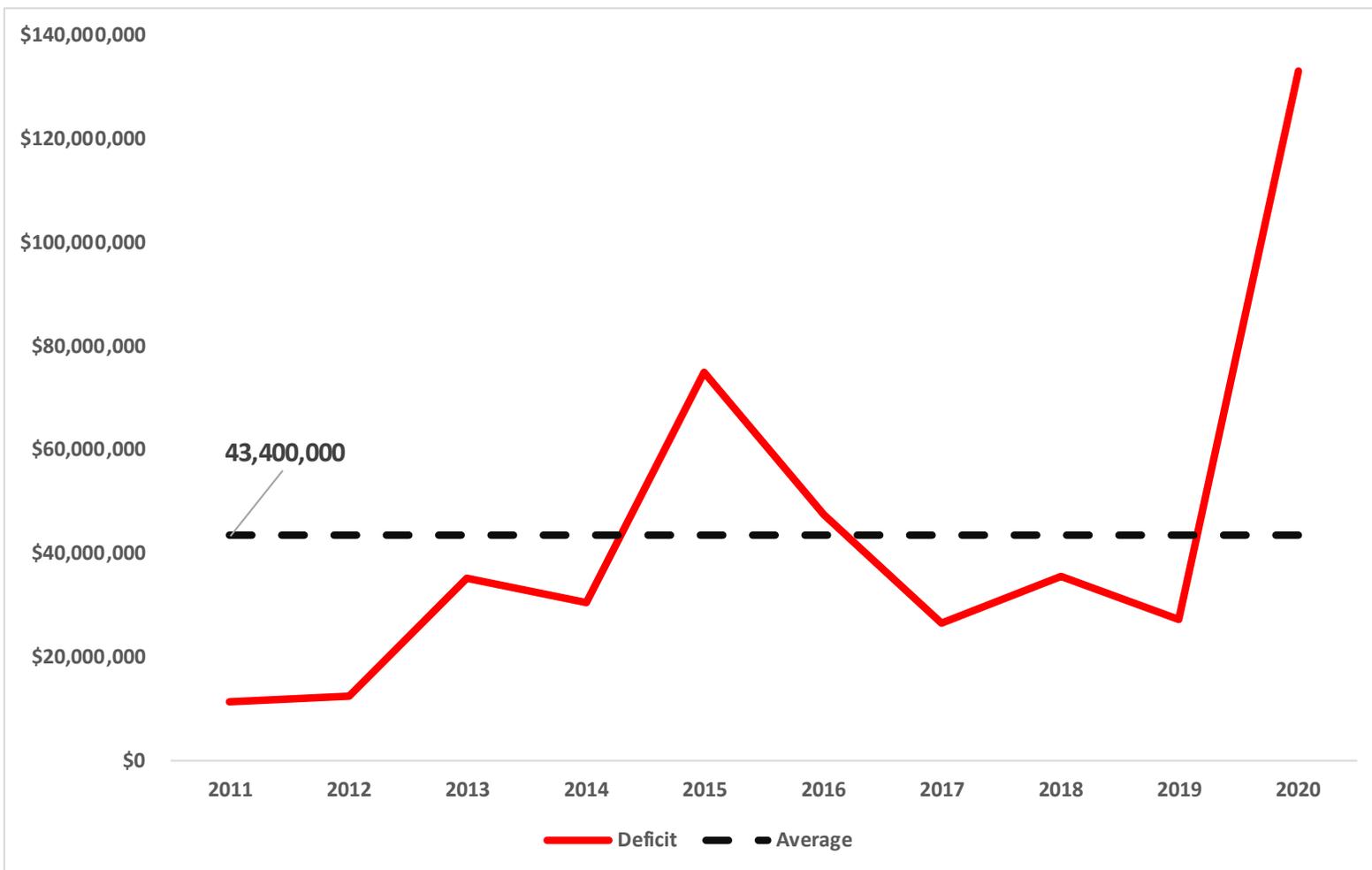
The current assets and contribution rates of the Retirees' Contributory Death Benefit Plan are not adequate. The plan provisions and/or contribution rates should be changed to reverse this projected shortfall.

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



# Retirees' Contributory Death Benefit Plan Asset Deficits

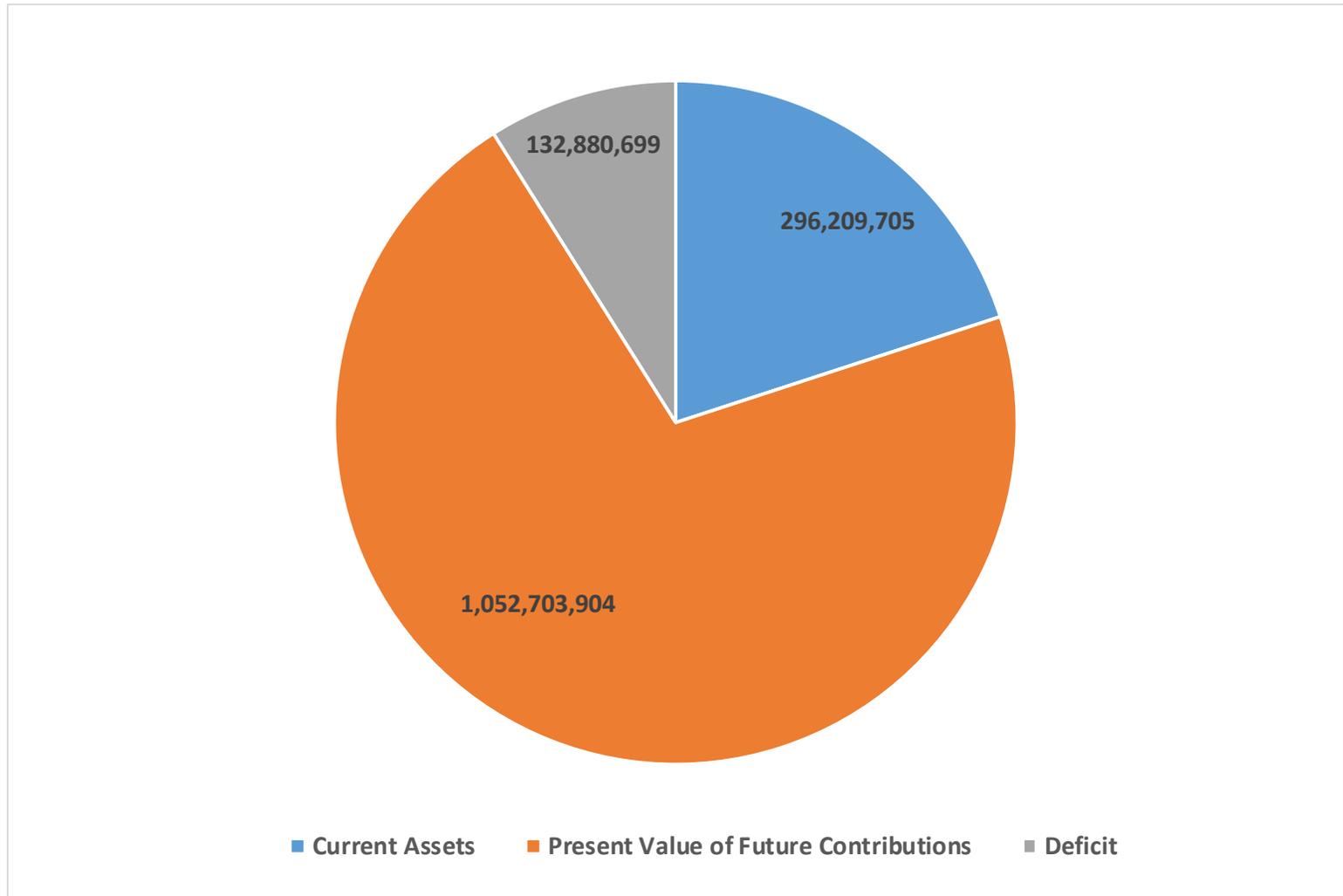
- Inputs**
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  - Asset Data
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  - Assumptions
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  - Actuarial Accrued Liability
  - Net Actuarial Gain or Loss
  - Funded Ratio
  - Employer Contributions
  - Benefit Enhancement
  - Additional Disclosures
  - Projections



Level of deficit is dependent on the expected rate of return, which was changed to 3.00% in the experience study.



# Sources of Retirees' Contributory Death Present Value of Future Benefits



# Comments on Retirees' Contributory Death Benefit Plan



- \$132.9 million dollar gap between assets and liabilities
- Based on the GASB 74 payout projections, assets will be exhausted by 2065
- Twelve 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

Wendy Ludbrook, FSA, EA, FCA, MAAA  
Consulting Actuary



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# Death Benefit Plans of North Carolina

Report on the Actuarial Valuation  
Prepared as of December 31, 2020

October 2021





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 13, 2021

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, 2020. 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 2022. We have assumed that 0.13% will continue to be funded in all future years.

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.

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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 assumptions used for the December 31, 2020 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.

In order to prepare the results in this report we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

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 read 'L Langer', with a stylized, cursive script.

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

A handwritten signature in blue ink, appearing to read 'Wendy Ludbrook', in a cursive script.

Wendy Ludbrook, FSA, EA, FCA, MAAA  
Consulting 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 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, 2020. 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	12/31/2020	12/31/2019
<b>Teachers' and State Employees' Retirement System Death Benefit Plan</b>		
Liabilities	\$ 161,030,193	\$ 169,651,732
Current Assets	64,613,302	58,812,369
Present Value of Future Contributions	209,616,804	256,670,319
Surplus / (Deficit)	113,199,913	145,830,956
<b>Local Governmental Employees' Retirement System Death Benefit Plan</b>		
Liabilities	\$ 53,469,194	\$ 58,975,706
Current Assets	96,572,606	88,568,566
Present Value of Future Contributions	40,511,754	43,141,531
Surplus / (Deficit)	83,615,166	72,734,391
<b>Separate Insurance Benefits Plan for Law Enforcement Officers</b>		
Liabilities	\$ 47,259,735	\$ 37,917,284
Current Assets	64,324,534	59,136,649
Present Value of Future Contributions	0	0
Surplus / (Deficit)	17,064,799	21,219,365
<b>Retirees' Contributory Death Benefit Plan</b>		
Liabilities	\$ 1,481,794,308	\$ 1,266,494,557
Current Assets	296,209,705	271,691,476
Present Value of Future Contributions	1,052,703,904	967,643,306
Surplus / (Deficit)	(132,880,699)	(27,159,775)



## 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	148,915	43.79	10.94	\$ 7,308,625,339
Other Education	46,965	49.69	11.62	2,114,081,030
General Employees	101,311	46.86	10.79	5,532,401,393
Law Enforcement Officers	<u>5,580</u>	<u>40.30</u>	<u>11.91</u>	<u>332,557,249</u>
Total	302,771	45.67	11.01	\$ 15,287,665,011

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 59.42 years and average service of 6.72 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	1,788	55.70	14.24	\$ 70,738,124
Other Education	716	56.97	13.46	20,894,180
General Employees	2,876	56.14	13.10	107,247,593
Law Enforcement Officers	<u>30</u>	<u>50.50</u>	<u>16.99</u>	<u>2,001,122</u>
Total	5,410	56.08	13.55	\$ 200,881,019

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	77,079	45.66	9.69	\$ 3,727,949,658
Firefighters	10,426	37.64	9.49	551,511,193
Law Enforcement Officers	<u>21,426</u>	<u>39.06</u>	<u>11.33</u>	<u>1,240,963,567</u>
Total	108,931	43.59	9.99	\$ 5,520,424,418

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, 2020, is 557 (compared to 556 as of December 31, 2019).

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

	Member Count	Average Age
Retired members currently covered under death benefit plan	131,064	70.36
Terminated members eligible to elect coverage under death plan at retirement	83,543	48.56
Active members eligible to elect coverage under death benefit plan at retirement	<u>441,306</u>	<u>45.26</u>
Total	655,913	50.69



## 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	5,610	40.35	11.91	\$ 334,558,371
Local Law Enforcement	<u>21,426</u>	<u>39.06</u>	<u>11.33</u>	<u>1,240,963,567</u>
Total	27,036	39.33	11.45	\$ 1,575,521,938

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

	Member Count	Average Age
State Law Enforcement	3,004	65.62
Local Law Enforcement	<u>8,823</u>	<u>62.97</u>
Total	11,827	63.64

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 2020 and 2019.

**Table 8: Asset Data**

Valuation Year	12/31/2020	12/31/2019
Contributions made on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 23,427,018	\$ 23,222,242
Local governmental employees	4,404,806	4,103,456
Separate Insurance Benefit Plans	0	0
Retirees' Contributory Death Benefit Plan	<u>27,907,299</u>	<u>27,254,689</u>
Total	\$ 55,739,123	\$ 54,580,387
Death benefits paid on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 20,398,832	\$ 16,249,107
Local governmental employees	5,168,585	5,042,350
Separate Insurance Benefit Plans	974,506	735,300
Retirees' Contributory Death Benefit Plan	<u>32,193,860</u>	<u>27,717,106</u>
Total	\$ 58,735,783	\$ 49,743,863
Net investment return as of the end of the valuation year on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 2,772,747	\$ 2,524,065
Local governmental employees	8,767,819	6,621,226
Separate Insurance Benefit Plans	6,162,391	4,495,845
Retirees' Contributory Death Benefit Plan	<u>28,804,790</u>	<u>19,028,009</u>
Total	\$ 46,507,747	\$ 32,669,145
Assets held as of the end of the valuation year on behalf of:		
Death Benefit Plans		
Teachers and state employees	\$ 64,613,302	\$ 58,812,369
Local governmental employees	96,572,606	88,568,566
Separate Insurance Benefit Plans	64,324,534	59,136,649
Retirees' Contributory Death Benefit Plan	<u>296,209,705</u>	<u>271,691,476</u>
Total	\$ 521,720,147	\$ 478,209,060



## Section 3: Asset Data

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The following table shows an allocation of investments by category as of December 31, 2020.

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

Cash and Receivables	3.5%
Fixed Income (LTIF)	96.5
Public Equity	0.0
Other *	<u>0.0</u>
Total	100.0%

\* Real Estate, Alternatives, Inflation and Credit.



## Section 4: Results of Valuation

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### 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, 2020, shows that the Plan has liabilities of \$161,030,193. Against these liabilities, the Plan has present assets of \$64,613,302. Prospective contributions by the State based on a 0.13% contribution rate have a value of \$209,616,804. The present and prospective assets, which amount to \$274,230,106, exceed the liabilities of \$161,030,193 by \$113,199,913.

### 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, 2022, 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, 2020, shows that the Plan has total liabilities of \$53,469,194. Against these liabilities, the Plan has present assets of \$96,572,606. Prospective contributions by the participating employers have a value of \$40,511,754. The total present and prospective assets amount to \$137,084,360, which exceeds the liabilities of \$53,469,194 by \$83,615,166.



## Section 4: Results of Valuation

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### 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, 2020, shows that the Plan has liabilities of \$47,259,735. Against these liabilities, the Plan has present assets of \$64,324,534. 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, 2020, shows that the Plan has liabilities of \$1,481,794,308. Against these liabilities the Plan has present assets of \$296,209,705. Prospective contributions of participants eligible for benefits have a value of \$1,052,703,904. The total present and prospective assets amount to \$1,348,913,609, which are less than the liabilities of \$1,481,794,308 by \$132,880,699. 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

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### 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 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 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.

**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								
Up to five years of membership								
	General Employees		Teachers, Librarians and Counselors		Law Enforcement Officers		Other Education	
Service	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 five years of membership								
	General Employees		Teachers, Librarians and Counselors		Law Enforcement Officers		Other Education	
Age	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 & Methods for TSERS Members

Annual Rates of Mortality for Employees								
(Base rates using Pub-2010 Amount weighted)								
Age	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 & Methods for TSERS Members

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

### Annual Rates of Retirement

#### General Employees

Male	Service						
Age	5	10	15	20	25	30	35
50				0.030	0.040	0.600	0.600
55				0.030	0.040	0.400	0.350
60	0.090	0.070	0.070	0.100	0.225	0.400	0.270
65	0.180	0.250	0.250	0.300	0.400	0.275	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

Female	Service						
Age	5	10	15	20	25	30	35
50				0.035	0.040	0.400	0.400
55				0.040	0.040	0.400	0.250
60	0.070	0.080	0.090	0.095	0.200	0.400	0.250
65	0.200	0.250	0.300	0.300	0.350	0.350	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

Male	Service						
Age	5	10	15	20	25	30	35
50				0.030	0.030	0.700	0.700
55				0.045	0.030	0.400	0.450
60	0.085	0.080	0.100	0.100	0.300	0.400	0.300
65	0.175	0.225	0.250	0.325	0.400	0.300	0.250
70	0.175	0.225	0.250	0.250	0.250	0.150	0.300
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Female	Service						
Age	5	10	15	20	25	30	35
50				0.050	0.045	0.650	0.750
55				0.050	0.045	0.400	0.375
60	0.080	0.100	0.100	0.130	0.250	0.500	0.375
65	0.250	0.300	0.250	0.350	0.475	0.450	0.400
70	0.225	0.250	0.300	0.300	0.300	0.400	0.325
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000



## Appendix B: Actuarial Assumptions & Methods for TSERS Members

### Annual Rates of Retirement

#### Law Enforcement Officers

Age	Service						
	5	10	15	20	25	30	35
50			0.040	0.050	0.050	0.900	0.800
55	0.200	0.200	0.350	0.350	0.500	0.950	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	0.250	0.500
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

#### Other Education

Male	Service						
Age	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	0.300	0.275
65	0.100	0.250	0.250	0.300	0.275	0.250	0.275
70	0.100	0.250	0.250	0.225	0.300	0.250	0.350
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Female	Service						
Age	5	10	15	20	25	30	35
50				0.045	0.045	0.400	0.500
55				0.045	0.060	0.300	0.300
60	0.070	0.090	0.100	0.100	0.300	0.375	0.300
65	0.175	0.250	0.250	0.300	0.350	0.300	0.350
70	0.150	0.200	0.225	0.200	0.275	0.200	0.350
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000



## Appendix B: Actuarial Assumptions & Methods for TSERS Members

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

Annual Rate of Salary Increase (Merit + Wage Inflation)				
Service	General Employees	Teachers, Librarians and Counselors	Law Enforcement Officers	Other Education
0	7.50%	7.30%	8.05%	7.50%
5	5.90%	6.12%	6.35%	5.90%
10	5.10%	5.29%	5.25%	5.10%
15	4.58%	4.38%	4.05%	4.58%
20	4.08%	3.25%	4.05%	4.08%
25	3.58%	3.25%	4.05%	3.58%
30	3.25%	3.25%	3.65%	3.25%
>=35	3.25%	3.25%	3.25%	3.25%



## Appendix B: Actuarial Assumptions & Methods for TSERS Members

**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)								
	General Employees		Teachers, Librarians and Counselors		Law Enforcement Officers		Other Education	
Age	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

Annual Rates of Post-Retirement Mortality						
	(Contingent Survivors of Deceased members)		(Members Disabled at Retirement)			
	All Survivors		Non - Law Enforcement Officers		Law Enforcement Officers	
Age	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 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.



## Appendix B: Actuarial Assumptions & Methods for TSERS Members

**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.

**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 are based on the General Mortality Table for Employees for all employees except law enforcement officers. 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:

The assumptions used for the December 31, 2020 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. Material assumptions and methods that were changed since the prior valuation:

- The investment return assumption was lowered from 3.75% to 3.00%
- The inflation assumption was lowered from 3.00% to 2.50%
- The real wage growth assumption was increased from 0.50% to 0.75%
- The withdrawal rates, retirement rates, mortality assumption, annual rate of salary increase assumptions and the benefit election assumption were changed



## Appendix C: Actuarial Assumptions & Methods for 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						
Up to five years of membership						
	General Employees		Firefighters & Rescue Squad Workers		Law Enforcement Officers	
Service	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
After five years of membership						
	General Employees		Firefighters & Rescue Squad Workers		Law Enforcement Officers	
Age	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		



## Appendix C: Actuarial Assumptions & Methods for LGERS Members

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

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	0.02760	0.00400	0.00700



## Appendix C: Actuarial Assumptions & Methods for LGERS Members

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

### Annual Rates of Retirement

#### General Employees

Male	Service						
Age	5	10	15	20	25	30	35
50				0.030	0.055	0.400	0.400
55				0.030	0.055	0.350	0.250
60	0.080	0.070	0.070	0.075	0.200	0.400	0.225
65	0.250	0.250	0.275	0.325	0.300	0.350	0.300
70	0.200	0.250	0.200	0.275	0.300	0.350	0.300
75	0.250	0.200	0.300	0.275	0.300	0.350	0.300
80	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Female	Service						
Age	5	10	15	20	25	30	35
50				0.035	0.050	0.400	0.450
55				0.050	0.055	0.300	0.300
60	0.080	0.090	0.070	0.100	0.250	0.375	0.250
65	0.250	0.250	0.350	0.350	0.350	0.350	0.300
70	0.200	0.250	0.225	0.300	0.200	0.300	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

#### Firefighters & Rescue Squad Workers

	Service						
Age	5	10	15	20	25	30	35
50				0.0325	0.0425	0.5500	0.5000
55	0.1200	0.0575	0.0575	0.0325	0.0425	0.5500	0.4000
60	0.1000	0.0575	0.0575	0.1250	0.3500	0.6000	0.4000
65	0.1000	0.2500	0.2500	0.2500	0.3500	0.5000	0.3250
70	0.3200	0.2500	0.2500	0.2500	0.3500	0.5000	0.3250
75	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



## Appendix C: Actuarial Assumptions & Methods for LGERS Members

Law Enforcement Officers							
Age	Service						
	5	10	15	20	25	30	35
50			0.040	0.035	0.030	0.900	0.825
55	0.150	0.225	0.300	0.350	0.600	0.900	0.500
60	0.150	0.150	0.125	0.250	0.325	0.350	0.250
65	0.175	0.200	0.250	0.250	0.375	0.350	0.300
70	0.175	0.300	0.350	0.200	0.375	0.350	0.275
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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

Annual Rate of Salary Increase			
Service	General Employees	Firefighters & Rescue Squad Workers	Law Enforcement Officers
0	8.25%	8.00%	7.75%
5	5.95%	5.90%	5.85%
10	4.98%	4.93%	5.06%
15	4.33%	4.28%	4.61%
20	3.94%	3.89%	4.35%
25	3.80%	3.75%	4.10%
30	3.80%	3.75%	3.85%
35	3.25%	3.75%	3.60%
>=40	3.25%	3.25%	3.25%



## Appendix C: Actuarial Assumptions & Methods for LGERS Members

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

Annual Rates of Post-Retirement Mortality				
(Members Healthy at Retirement)				
	General Employees		Firefighters, Rescue Squad Workers, & Law Enforcement Officers	
Age	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						
	(Contingent Survivors of Deceased members)		(Members Disabled at Retirement)			
	All Survivors		General Employees		Firefighters, Rescue Squad Workers, & Law Enforcement Officers	
Age	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 & Methods for LGERS Members

**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 inspection.

### Changes Since Prior Valuation:

The assumptions used for the December 31, 2020 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. Material assumptions and methods that were changed since the prior valuation:

- The investment return assumption was lowered from 3.75% to 3.00%
- The inflation assumption was lowered from 3.00% to 2.50%
- The real wage growth assumption was increased from 0.50% to 0.75%
- The withdrawal rates, retirement rates, mortality assumption, annual rate of salary increase assumptions and the benefit election assumption were changed



## 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. 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.

**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			
	Disability	Base Mortality*	
Age	Male & Female	Male	Femal
25	.00002	.00024	.0000
30	.00003	.00031	.0001
35	.00008	.00041	.0002
40	.00017	.00057	.0003
45	.00035	.00085	.0005
50	.00059	.00129	.0007
55	.00119	.00190	.0011
60	.00192	.00276	.0016
64	.00246	.00375	.0024

\*Base mortality rates as of 2010.

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

Annual Rates of Retirement						
Service						
Age*	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.



## Appendix D: Actuarial Assumptions & Methods for CJRS Members

**Deaths After Retirement:** Representative values of the assumed post-retirement mortality rates in 2010 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	.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.

**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:

The assumptions used for the December 31, 2020 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. Material assumptions and methods that were changed since the prior valuation:

- The investment return assumption was lowered from 3.75% to 3.00%
- The inflation assumption was lowered from 3.00% to 2.50%
- The real wage growth assumption was increased from 0.50% to 0.75%
- The withdrawal rates, retirement rates, mortality assumption and annual rates of salary increase assumption and the benefit election assumption were changed
- Incorporating reciprocity service from other RSD systems for eligibility purposes



## Appendix E: Actuarial Assumptions & Methods for 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:

Annual Rate of				
		Base Mortality*		
Age	Disability	Male	Female	Withdrawal
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 service retirement are as follows:

Annual Rate of Retirement	
Age	5 years of Service
60	0.100
65	0.100
70	0.130
75	0.150
80	1.000



## Appendix E: Actuarial Assumptions & Methods for LRS Members

**Deaths After Retirement:** Representative values of the assumed post-retirement mortality rates in 2010 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	.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.

**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:

The assumptions used for the December 31, 2020 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. Material assumptions and methods that were changed since the prior valuation:

- The investment return assumption was lowered from 3.75% to 3.00%
- The inflation assumption was lowered from 3.00% to 2.50%
- The real wage growth assumption was increased from 0.50% to 0.75%
- The withdrawal rates, retirement rates, mortality assumption, annual rate of salary increase assumptions and the benefit election assumption were changed



## 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, 2022.

Employer Code	Employer	Contribution Rate
90001	Yancey County	0.06%
90011	Burnsville, Town of	0.08%
90092	Martin-Tyrrell-Washington Dist Health Dept	0.04%
90096	Albemarle Regional Health Services	0.06%
90098	Toe River Health District	0.06%
90099	Appalachian District Health Dept	0.02%
90101	Alamance County	0.04%
90111	Burlington, City of	0.05%
90117	Alamance Municipal A.B.C. Board	0.13%
90131	Elon, Town of	0.04%
90201	Alexander County	0.05%
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	0.06%
90305	Northwestern Regional Library	0.09%
90401	Anson County	0.06%
90411	Wadesboro, Town of	0.07%
90413	Wadesboro Housing Authority	0.07%
90417	Wadesboro A.B.C. Board	0.11%
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	0.07%
90617	High Country A.B. C. Board	0.05%
90701	Beaufort County	0.04%
90704	Beaufort County A.B.C. Board	0.12%
90705	B.H.M. Regional Library	0.11%
90709	Mideast Commission	0.04%
90711	Washington, City of	0.05%
90721	Aurora, Town of	0.12%
90804	Bertie County A.B.C. Board	0.12%
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, 2022.

Employer Code	Employer	Contribution Rate
90811	Aulander, Town of	0.04%
90813	Colerain, Town of	0.23%
90901	Bladen County	0.05%
90911	Elizabethtown, Town of	0.05%
90918	South Eastern Economic Development Comm	0.02%
90921	White Lake, Town of	0.07%
90931	Clarkton, Town pf	0.05%
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	0.06%
91013	Southeast Brunswick Sanitary District	0.10%
91017	Southport A.B.C. Board	0.18%
91021	Oak Island, Town of	0.06%
91027	Oak Island A.B.C. Bd	0.14%
91041	Sunset Beach, Town of	0.04%
91047	Sunset Beach A.B.C. Board	0.31%
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	0.06%
91091	Bald Head Island, Village of	0.05%
91101	Buncombe County	0.03%
91102	Land-of-Sky Regional Council	0.05%
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	0.04%
91141	Weaverville, Town of	0.09%
91151	Black Mountain, Town of	0.04%
91154	Black Mountain A.B.C. Board	0.09%
91161	Montreat, Town of	0.06%
91201	Burke County	0.05%
91203	Burke Co Health Dept	0.04%



## 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, 2022.

Employer Code	Employer	Contribution Rate
91206	Burke Co Dept of Social Services	0.04%
91211	Valdese, Town of	0.06%
91217	Morganton A.B.C. Board	0.09%
91221	Drexel, Town of	0.04%
91233	Morganton Housing Authority	0.05%
91241	Glen Alpine, Town of	0.06%
91301	Cabarrus County	0.04%
91302	Water & Sewer Auth of Cabarrus County	0.03%
91306	Cabarrus Co Public Health Auth	0.03%
91311	Concord, City of	0.04%
91317	Concord A.B.C. Board	0.09%
91327	Mt. Pleasant A.B.C. Board	0.04%
91331	Kannapolis, City of	0.04%
91401	Caldwell County	0.05%
91411	Granite Falls, Town of	0.05%
91417	Granite Falls A.B.C. Board	0.14%
91423	Lenoir Housing Authority	0.05%
91451	Lenoir, City of	0.12%
91501	Camden County	0.07%
91504	Camden County A.B.C. Board	0.21%
91601	Carteret County	0.06%
91604	Carteret County A.B.C. Board	0.12%
91611	Morehead City, Town of	0.04%
91631	Beaufort, Town of	0.05%
91641	Pine Knoll Shores, Town of	0.03%
91671	Cape Carteret, Town of	0.04%
91681	Atlantic Beach, Town of	0.10%
91701	Caswell County	0.06%
91704	Caswell County A.B.C. Board	0.13%
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	0.15%
91811	Hickory, City of	0.05%
91813	Hickory Public Housing Authority	0.03%



## 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, 2022.

Employer Code	Employer	Contribution Rate
91819	Western Piedmont Regional Transit Authority	0.21%
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 ABC 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%
92001	Cherokee County	0.08%
92005	Nantahala Regional Library	0.18%
92011	Murphy, Town of	0.11%
92017	Murphy A.B.C. Board	0.05%
92101	Chowan County	0.06%
92104	Chowan County A.B.C. Board	0.13%
92109	Albemarle Regional Planning & Development Comm	0.03%
92111	Edenton, Town of	0.05%
92113	New Edenton Housing Auth	0.11%
92201	Clay County	0.06%
92301	Cleveland County	0.04%
92311	Shelby, City of	0.05%
92317	Shelby A.B.C. Board	0.09%
92327	Kings Mountain A.B.C. Board	0.21%
92331	Boiling Springs, Town of	0.10%
92351	Grover, Town of	0.08%
92401	Columbus County	0.08%
92411	Whiteville, City of	0.06%
92417	Whiteville A.B.C. Board	0.01%
92427	Lake Waccamaw A.B.C. Board	0.23%
92501	Craven County	0.05%
92504	Craven Co A.B.C. Bd	0.07%
92505	Craven-Pamlico-Carteret Regional Library	0.11%
92506	Coastal Carolina Regional Airport	0.23%



## 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, 2022.

Employer Code	Employer	Contribution Rate
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	0.08%
92531	Havelock, City of	0.05%
92601	Cumberland County	0.04%
92604	Cumberland Co A.B.C. Board	0.06%
92607	Mid-Carolina Council Of Governments	0.04%
92611	Fayetteville, City of	0.05%
92613	Fayetteville Metropolitan Housing Auth	0.06%
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%
92801	Dare County	0.05%
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	0.10%
92841	Southern Shores, Town of	0.03%
92851	Kitty Hawk, Town of	0.11%
92901	Davidson County	0.06%
92911	Thomasville, City of	0.06%
92917	Lexington A.B.C. Board	0.21%
92931	Lexington, City of	0.05%
93001	Davie County	0.04%
93011	Mocksville, Town of	0.06%
93101	Duplin County	0.07%
93108	Eastpointe Human Services	0.04%
93111	Beulaville, Town of	0.06%
93121	Kenansville, Town of	0.08%
93131	Warsaw, Town of	0.36%
93141	Faison, Town of	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, 2022.

Employer Code	Employer	Contribution Rate
93161	Rose Hill, Town of	0.10%
93201	Durham County	0.04%
93204	Durham County A.B.C. Board	0.06%
93219	Triangle J Council of Governments	0.03%
93301	Edgecombe County	0.07%
93304	Edgecombe County A.B.C. Board	0.10%
93305	Edgecombe County Memorial Library	0.09%
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	0.04%
93331	Pinetops, Town of	0.08%
93341	Macclesfield, Town of	0.03%
93406	Piedmont Triad Regional Council	0.10%
93413	Winston-Salem Housing Authority	0.05%
93417	Triad Municipal A.B.C. Board	0.11%
93431	Rural Hall, Town of	0.04%
93501	Franklin County	0.07%
93517	Franklinton A.B.C Board	0.22%
93521	Louisburg, Town of	0.06%
93527	Louisburg A.B.C. Board	0.08%
93601	Gaston County	0.03%
93602	Stanley, Town of	0.07%
93609	Partners Behavioral Health Management	0.04%
93610	Mcadenville, Town of	0.03%
93617	Gastonia A.B.C. Board	0.23%
93631	Cramerton, Town of	0.15%
93641	Cherryville, City of	0.08%
93671	Bessemer City, City of	0.11%
93691	Mount Holly, City of	0.05%
93701	Gates County	0.05%
93704	Gates County A.B.C. Board	0.19%
93803	Graham Co Health Dept	0.04%
93806	Graham County Dept of S S	0.04%



## 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, 2022.

Employer Code	Employer	Contribution Rate
93821	Robbinsville, Town of	0.08%
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	0.12%
93911	Oxford, City of	0.06%
93913	Oxford Housing Authority	0.06%
93914	Stovall, Town of	0.25%
93931	Butner, Town of	0.08%
94001	Greene County	0.06%
94004	Greene County A.B.C. Board	0.12%
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	0.04%
94117	Greensboro A.B.C. Bd	0.08%
94121	High Point, City of	0.04%
94127	High Point A.B.C. Bd	0.09%
94131	Jamestown, Town of	0.05%
94151	Gibsonville, Town of	0.06%
94172	Summerfield Fire District	0.03%
94201	Halifax County	0.05%
94204	Halifax County A.B.C. Board	0.08%
94205	Halifax County Tourism Development Authority	0.10%
94209	Roanoke Rapids Sanitary District	0.05%
94211	Enfield, Town of	0.14%
94221	Roanoke Rapids, City of	0.07%
94231	Weldon, Town of	0.10%
94241	Scotland Neck, Town of	0.12%
94251	Hobgood, Town of	0.06%
94301	Harnett County	0.05%
94311	Dunn, City of	0.05%
94313	Dunn Housing Authority	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, 2022.

Employer Code	Employer	Contribution Rate
94317	Dunn A.B.C. Board	0.12%
94321	Lillington, Town of	0.03%
94331	Erwin, Town of	0.08%
94341	Coats, Town of	0.05%
94347	Angier A.B.C. Board	0.05%
94401	Haywood County	0.05%
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	0.07%
94527	Laurel Park A.B.C. Board	0.07%
94532	Blue Ridge Fire Department	0.04%
94551	Mills River, Town of	0.22%
94601	Hertford County	0.06%
94604	Hertford County A.B.C. Board	0.08%
94611	Ahoskie, Town of	0.10%
94631	Winton, Town of	0.15%
94701	Hoke County	0.06%
94704	Hoke County A.B.C. Board	0.10%
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	0.10%
94921	Mooresville, City of	0.04%
94923	Mooresville Housing Authority	0.06%
94927	Mooresville A.B.C. Board	0.06%
94931	Troutman, Town of	0.13%
95001	Jackson County	0.06%
95002	Tuckaseegee Water Authority	0.06%
95005	Fontana Regional Library	0.08%



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Employer Code	Employer	Contribution Rate
95008	Southwestern NC Planning & Econ Dev Comm	0.04%
95009	Vaya Health	0.03%
95011	Sylva, Town of	0.04%
95017	Jackson County A.B.C. Board	0.08%
95101	Johnston County	0.04%
95104	Johnston County A.B.C. Board	0.12%
95105	Public Library of Johnston Co and Smithfield	0.05%
95106	Archer Lodge, Town of	0.22%
95110	Johnston Health Center	0.09%
95111	Smithfield, Town of	0.05%
95121	Selma, Town of	0.05%
95123	Selma Houing Authority	0.03%
95131	Clayton, Town of	0.04%
95141	Benson, Town of	0.04%
95201	Jones County	0.04%
95204	Jones County A.B.C. Board	0.15%
95205	Neuse Regional Library-Jones County	0.08%
95211	Pollockville, Town of	0.46%
95301	Lee County	0.06%
95317	Sanford A.B.C. Board	0.11%
95321	Broadway, Town of	0.11%
95401	Lenoir County	0.05%
95404	Lenoir County A.B.C. Board	0.04%
95405	Neuse Regional Library	0.04%
95411	Kinston, City of	0.07%
95413	Kinston Housing Authority	0.05%
95415	Kinston-Lenoir Co Pub Library	0.10%
95421	Pink Hill, Town of	0.06%
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	0.14%
95601	Macon County	0.06%
95611	Franklin, Town of	0.05%



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Employer Code	Employer	Contribution Rate
95617	Highlands A.B.C. Board	0.20%
95701	Madison County	0.07%
95711	Mars Hill, Town of	0.05%
95721	Marshall, Town of	0.11%
95801	Martin County	0.07%
95802	Martin Co Travel & Tourism Auth	0.27%
95804	Martin County A.B.C. Board	0.04%
95813	Williamston Housing Authority	0.11%
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	0.07%
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	0.09%
96071	Matthews, Town of	0.04%
96081	Davidson, Town of	0.06%
96101	Mitchell County	0.11%
96111	Spruce Pine, Town of	0.10%
96201	Montgomery County	0.05%
96204	Montgomery-Municipal A.B.C. Board	0.09%
96251	Mount Gilead, Town of	0.05%
96301	Moore County	0.05%
96304	Moore County A.B.C. Board	0.10%
96305	Moore County Tourism Development Authority	0.15%
96310	Moore County Airport Authority	0.07%
96311	Southern Pines, Town of	0.04%
96321	Vass, Town of	0.07%
96331	Aberdeen, Town of	0.06%
96351	Pinehurst, Village of	0.04%
96361	Pinebluff, Town of	0.22%
96371	Whispering Pines, Village of	0.07%



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Employer Code	Employer	Contribution Rate
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%
96501	New Hanover County	0.04%
96502	New Hanover Airport Auth	0.05%
96504	New Hanover County A.B.C. Board	0.17%
96508	Lower Cape Fear Water & Sewer Auth	0.10%
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	0.06%
96731	Holly Ridge, Town of	0.04%
96751	North Topsail Beach, Town of	0.13%
96801	Orange County	0.04%
96804	Orange County A.B.C. Board	0.04%
96808	Orange Water and Sewer Authority	0.04%
96811	Chapel Hill, Town of	0.05%
96821	Carrboro, Town of	0.04%
96831	Hillsborough, Town of	0.04%
96901	Pamlico County	0.06%
96918	Bay River Metro Sewerage District	0.15%
97001	Pasquotank County	0.06%
97002	Pasquotank-Camden Ambulance Service	0.04%
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	0.05%



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Employer Code	Employer	Contribution Rate
97101	Pender County	0.04%
97104	Pender County A.B.C. Board	0.12%
97121	Topsail Beach, Town of	0.09%
97131	Surf City, Town of	0.03%
97201	Perquimans County	0.05%
97211	Hertford, Town of	0.06%
97217	Hertford A.B.C. Board	0.12%
97301	Person County	0.05%
97304	Person Co A.B.C. Bd	0.16%
97311	Roxboro, City of	0.06%
97401	Pitt County	0.04%
97404	Pitt County A.B.C. Board	0.05%
97405	Sheppard Memorial Library	0.08%
97408	Contennea Metropolitan Sewerage Dist	0.06%
97411	Greenville, City of	0.04%
97412	Greenville Utilities Commission	0.04%
97413	Greenville Housing Authority	0.06%
97421	Farmville, Town of	0.04%
97431	Grifton, Town of	0.08%
97441	Bethel, Town of	0.09%
97451	Winterville, Town of	0.04%
97471	Grimesland, Town of	0.09%
97501	Polk County	0.06%
97511	Tryon, Town of	0.08%
97531	Saluda, City of	0.05%
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	0.04%
97651	Archdale, City of	0.08%
97701	Richmond County	0.05%
97705	Sandhill Regional Library	0.08%



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Employer Code	Employer	Contribution Rate
97711	Rockingham, City of	0.06%
97713	Rockingham Authority	0.03%
97717	Hamlet A.B.C. Board	0.05%
97721	Hamlet, City of	0.07%
97727	Rockingham A.B.C. Board	0.09%
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	0.07%
97811	Lumberton, City of	0.06%
97821	Fairmont, Town of	0.13%
97823	Fairmont Housing Authority	0.05%
97831	St Pauls, Town of	0.06%
97840	Maxton, Town of	0.09%
97847	Maxton A.B.C. Board	0.16%
97851	Pembroke, Town of	0.07%
97861	Rowland, Town of	0.14%
97871	Red Springs, Town of	0.08%
97901	Rockingham County	0.04%
97911	Reidsville, City of	0.07%
97913	New Reidsville Housing Auth	0.10%
97917	Reidsville A.B.C. Board	0.06%
97921	Mayodan, Town of	0.12%
97941	Madison, Town of	0.05%
98001	Rowan County	0.05%
98004	Rowan County A.B.C. Board	0.12%
98011	Salisbury, City of	0.04%
98021	East Spencer, Town of	0.15%
98023	East Spencer Housing Authority	0.03%
98031	Spencer, Town of	0.08%
98041	China Grove, Town of	0.05%
98061	Granite Quarry, Town of	0.03%
98091	Cleveland, Town of	0.06%
98101	Rutherford County	0.05%
98102	Broad River Water Authority	0.04%



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Employer Code	Employer	Contribution Rate
98103	Rutherford Polk McDowell Dist Brd of Health	0.04%
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	0.05%
98201	Sampson County	0.04%
98205	J C Holiday Mem Library	0.04%
98211	Clinton, City of	0.05%
98218	Clinton A.B.C. Board	0.05%
98221	Salemburg, Town of	0.04%
98231	Newton Grove, Town of	0.04%
98241	Garland, Town of	0.06%
98251	Turkey, Town of	0.13%
98261	Roseboro, Town of	0.07%
98271	Autryville, Town of	0.04%
98301	Scotland County	0.05%
98304	Scotland County A.B.C. Board	0.10%
98311	Laurinburg, City of	0.05%
98313	Laurinburg Housing Authority	0.09%
98321	Wagram, Town of	0.06%
98401	Stanly County	0.06%
98411	Albemarle, City of	0.05%
98414	Village of Misenheimer	0.18%
98421	Norwood, Town of	0.08%
98451	Badin, Town of	0.06%
98501	Stokes County	0.04%
98511	Walnut Cove, Town of	0.06%
98521	King, City of	0.05%
98601	Surry County	0.08%
98611	Pilot Mountain, Town of	0.07%
98621	Dobson, Town of	0.06%
98631	Mount Airy, City of	0.14%
98637	Mount Airy Alcoholic Board of Control	0.07%
98641	Elkin, Town of	0.06%
98701	Swain County	0.06%



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Employer Code	Employer	Contribution Rate
98711	Bryson City, Town of	0.07%
98717	Bryson City A.B.C. Board	0.08%
98801	Transylvania County	0.05%
98811	Brevard, City of	0.06%
98901	Tyrrell County	0.08%
98904	Tyrrell Co A.B.C. Board	0.08%
99001	Union County	0.04%
99011	Monroe, City of	0.04%
99013	Monroe Housing Authority	0.07%
99014	Indian Trail A.B.C. Board	0.14%
99017	Monroe A.B.C. Board	0.07%
99021	Marshville, Town of	0.07%
99031	Wingate, Town of	0.09%
99041	Waxhaw, Town of	0.04%
99051	Indian Trail, Town of	0.04%
99071	Weddington, Town of	0.09%
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	0.09%
99204	Wake County A.B.C. Board	0.05%
99206	Morrisville, Town of	0.03%
99213	Raleigh Housing Authority	0.05%
99218	Raleigh-Durham Airport Authority	0.04%
99221	Cary, Town of	0.04%
99222	Centennial Authority	0.03%
99231	Wendell, Town of	0.04%
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	0.08%



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Employer Code	Employer	Contribution Rate
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	0.08%
99411	Plymouth, Town of	0.08%
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	0.04%
99601	Wayne County	0.06%
99602	Fork Township Sanitary Dist	0.03%
99604	Wayne County A.B.C. Board	0.11%
99609	Southern Wayne Sanitary District	0.05%
99610	Eastern Wayne Sanitary Dist	0.13%
99611	Goldsboro, City of	0.05%
99613	Goldsboro Housing Authority	0.05%
99701	Wilkes County	0.04%
99711	North Wilkesboro, Town of	0.08%
99717	North Wilkesboro A.B.C. Board	0.08%
99721	Wilkesboro, Town of	0.05%
99801	Wilson County	0.04%
99804	Wilson County A.B.C. Board	0.06%
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%
99931	East Bend, Town of	0.09%
99991	N C Assoc of Co Commissioners	0.03%
99999	N C League of Municipalities	0.03%