



# Cavanaugh Macdonald

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January 25, 2019

Mr. Steve Toole  
Director  
State of North Carolina  
Department of State Treasurer  
Retirement Systems Division  
3200 Atlantic Avenue  
Raleigh, NC 27604

**Local Governmental Employees' Retirement System  
December 31, 2017 Actuarial Valuation**

Dear Mr. Toole:

Enclosed is a restated report on the actuarial valuation for the North Carolina Local Governmental Employees' Retirement prepared as of December 31, 2017 and a restated presentation showing the principal results of the valuation. The restated materials are denoted by "Restated January 2019" on the covers and the January 25, 2019 date on the cover letter of the valuation report.

The changes in the restated documents are reflected in the graphs shown on pages 21-22 and 42-44 of the valuation report and pages 35-37 of the presentation. All other material in the documents remains unchanged from the versions submitted in October 2018.

Please let us know if you require additional information.

Sincerely,

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

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



**Cavanaugh Macdonald**  
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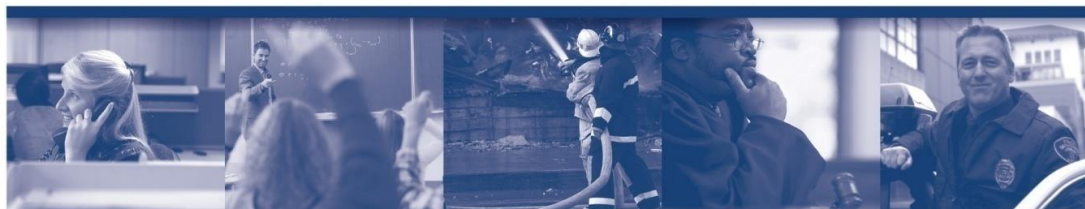
*The experience and dedication you deserve*

# **Local Governmental Employees' Retirement System Principal Results of Actuarial Valuation as of December 31, 2017**

## **October 25, 2018 Board of Trustees Meeting**

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

**Jonathan Craven, ASA, FCA, EA, MAAA**



# Purpose of the Annual Actuarial Valuation



- As of the end of each calendar year:
  - An annual actuarial valuation is performed on LGERS
  - The actuary determines the amount of employer contributions to be made to LGERS during each member's career that, when combined with investment return and member contributions, are expected to be sufficient to pay for retirement benefits.
- In addition, the annual actuarial valuation is performed to:
  - Determine the progress on funding LGERS
  - Explore why the results of the current valuation differ from the results of the valuation of the previous year
  - Satisfy regulatory and accounting requirements



# The Valuation Process

- The diagram to the right summarizes the inputs and results of the actuarial valuation process.
- A detailed summary of the valuation process and a glossary of actuarial terms are provided in Appendix A of the actuarial report.
- This diagram will appear throughout the presentation to designate where we are in the process.

## **Inputs**

Member Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## **Results**

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



# Member Data

## 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

The table below provides a summary of the membership data used in this valuation compared to the prior valuation.

	12/31/2017	12/31/2016
Active Members	128,779	126,647
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	68,243	63,682
Retired members and survivors of deceased members currently receiving benefits	68,766	65,930
Total	265,788	256,259

The number of active members increased by 1.7% from the previous valuation date. The increase in active members results in more benefits accruing, but also more contributions supporting the system. The number of retired members and survivors of deceased members currently receiving benefits increased by 4.3% from the previous valuation. The increase in retiree population is consistent with expectations.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B.

# Active Members

## 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

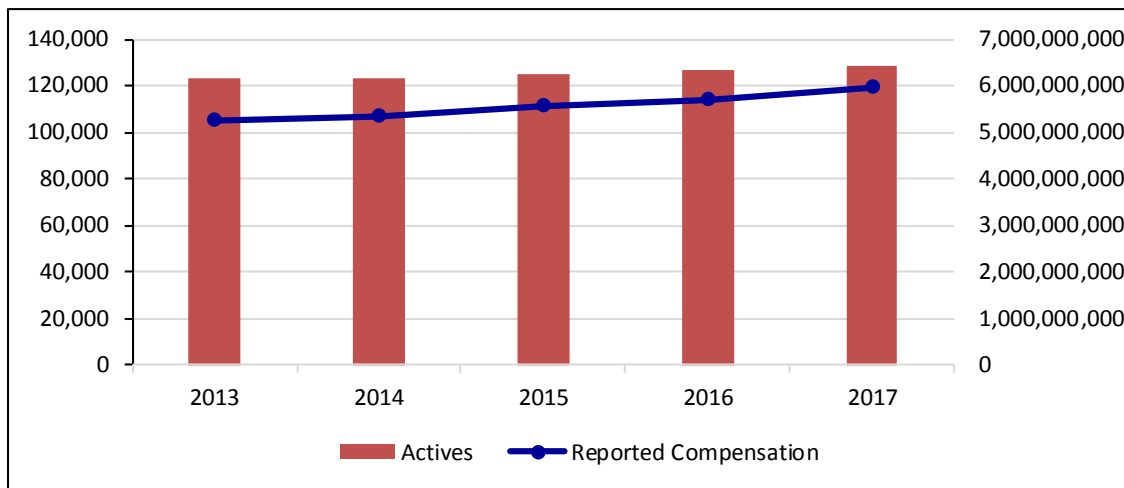
Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

The graph below provides a history of the number of active members and reported compensation over the past five years.



Reported compensation has increased by 4.0%. Total covered payroll\* is expected to increase by approximately 3.5% annually in the future. Payroll that is increasing faster than we assume results in more benefits accruing than we anticipate, but also more contributions supporting the system.

\*Total covered payroll is retirement-eligible compensation paid to all members. It does not imply a 3.5% pay increase to all members

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B.



# Membership Data

## 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

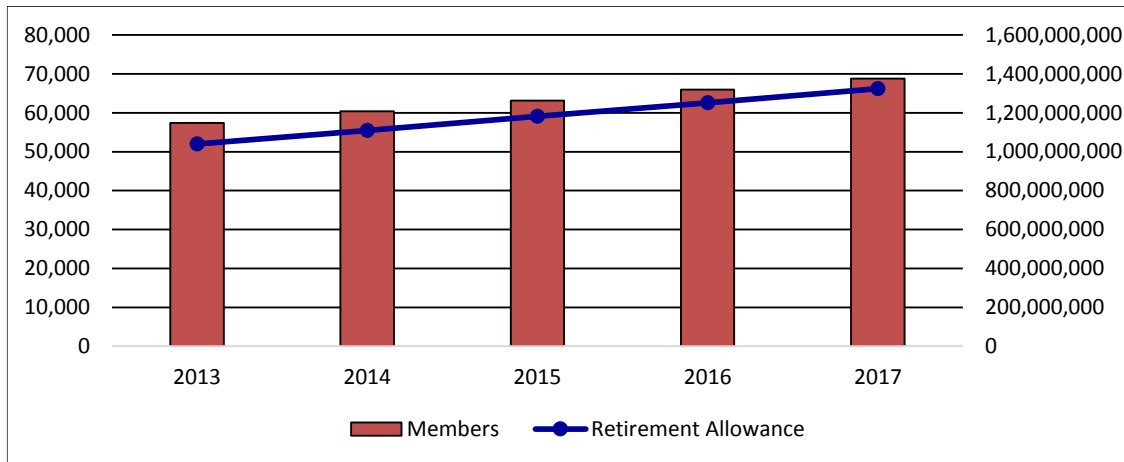
Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

The graph below provides a history of the number of retired members and survivors of deceased members and benefit amounts payable over the past five years.



The number of retired members and survivors of deceased members and the benefits paid to these members has been increasing steadily, as expected based on plan assumptions.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B.

# Valuation Input

## Asset Data



### 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

The table below provides details of the Market Value of Assets for the current and prior year's valuations.

Asset Data as of	12/31/2017	12/31/2016
Beginning of Year Market Value of Assets	23,308,817,567	22,403,836,820
Contributions	866,115,992	816,918,631
Benefit Payments	(1,363,305,171)	(1,291,506,719)
Investment Income	<u>3,106,732,653</u>	<u>1,379,568,835</u>
Net Increase/(Decrease)	2,609,543,474	904,980,747
End of Year Value of Assets	25,918,361,041	23,308,817,567
Estimated Net Investment Return	13.47%	6.22%

LGERS assets are held in trust and are invested for the exclusive benefit of plan members.

Incoming contributions cover more than 60% of the outgoing benefit payments and administrative expenses. Over the long term, benefit payments and administrative expenses not paid for by contributions are expected to be covered with investment income, illustrating the benefits of following actuarial pre-funding since inception.

A detailed summary of the market value of assets is provided in Section 4.



# Valuation Input

## Asset Data



### 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

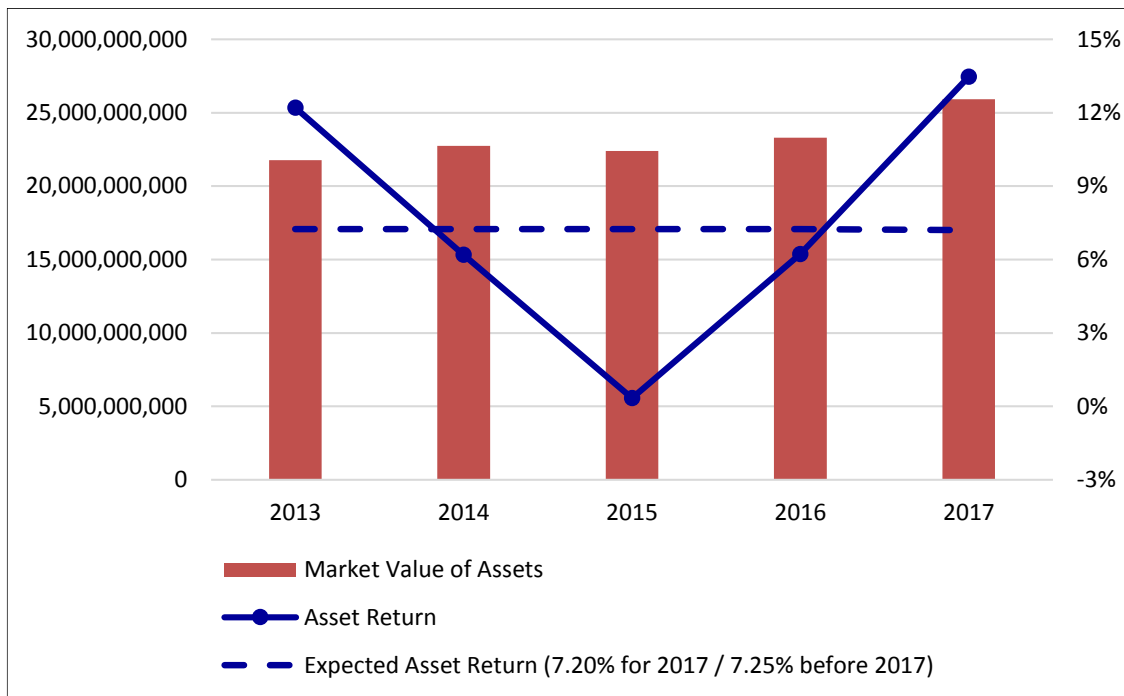
Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

The graph below provides a history of the market value of assets and asset returns over the past five years.



Market value returns exceeded the assumed rate of return for the first time since 2013. However, the return on the actuarial value of assets which is used to determine the contribution rates did not exceed the 7.20% assumed rate of return in 2017 because of delayed recognition of less than expected returns in 2015 and 2016.

A detailed summary of the market value of assets is provided in Section 4.

# Valuation Input

## Asset Data



### 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

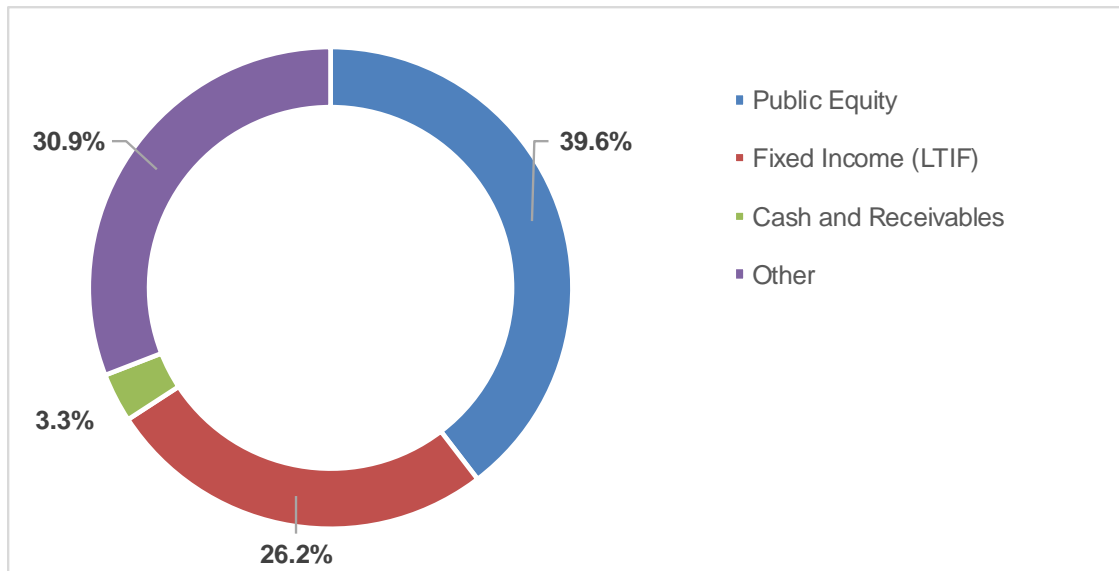
Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

The graph below provides the breakdown of the market value of assets at December 31, 2017 by asset category.



Based on historical market returns, the current asset allocation, the current investment policy, and the expectation of future asset returns, as reviewed in the last experience study, the 7.00% discount rate used in this valuation is reasonable and appropriate.

A detailed summary of the market value of assets is provided in Section 4.



# Benefit Provisions

## Inputs

Membership Data

Asset Data

Benefit Provisions

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Funding Methodology



## Results

Actuarial Value of Assets

Actuarial Accrued Liability

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Benefit Enhancement

Additional Disclosures

Projections

Benefit provisions are described in North Carolina General Statutes, Chapter 128.

- This valuation reflects the following change in benefit provisions from the prior year's valuation:
  - Addition of eligibility for reduced benefits after 25 years of service for law enforcement officers. (We are assuming no one elects to retire under this provision since it would reduce the actuarial value of their benefit from this plan).

Many Public Sector Retirement Systems in the United States have undergone pension reform where the benefits of members (active or future members) have been reduced. Because of the well-funded status of LGERS due to the employers paying the actuarially determined employer contribution, benefit cuts have not been made in North Carolina as they have been in most other states. Instead, we have seen a modest expansion of benefits in recent years based on sound plan design.

A detailed summary of the benefit provisions is provided in Appendix C.

# Benefit Provisions

## 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

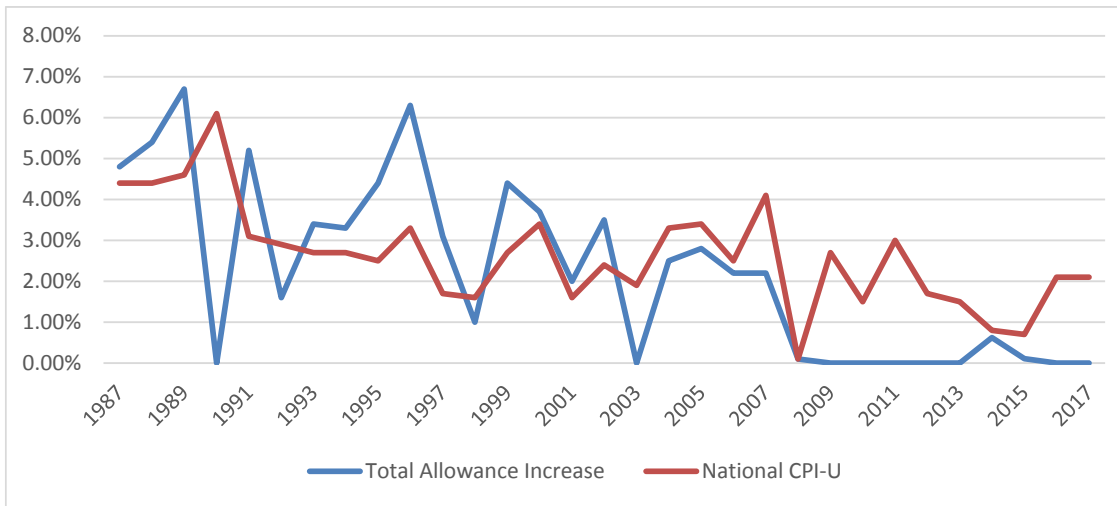
Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

The graph below provides a 30-year history of allowance increases for LGERS and the national CPI-U.



Generally the ad-hoc retirement allowance increase policy has helped retirees maintain purchasing power while helping to moderate contribution increases during times of down markets.

A detailed summary of the benefit provisions is provided in Appendix C of the actuarial report.



# Actuarial Assumptions

## Inputs

Membership Data

Asset Data

Benefit Provisions

Assumptions

Funding Methodology



## Results

Actuarial Value of Assets

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Additional Disclosures

Projections

Actuarial assumptions bridge the gap between the information that we know with certainty as of the valuation date and what may happen in the future. The assumptions used include the following:

- **Demographic**
  - Retirement
  - Termination
  - Disability
  - Death
- **Economic**
  - Interest rate – 7.00% per year
  - Salary increase (individual, varies by service)
  - Inflation – 3.00%
  - Real wage growth – 0.50%

The assumptions used for the December 31, 2017 actuarial valuation are based on the experience study prepared as of December 31, 2014 and adopted by the Board of Trustees on January 21, 2016. The discount rate was updated to 7.00%, as adopted by the Board of Trustees on April 26, 2018. The impact on the contribution rate will be direct-rate smoothed over a three year period.

A detailed summary of the actuarial assumptions and methods is provided in Appendix D.



# Funding Methodology

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions

## Funding Methodology



## Results

Actuarial Value of Assets  
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The Funding Methodology is the payment plan for LGERS and is composed of the Actuarial Cost Method, the Asset Valuation Method and Amortization Method.

- Actuarial Cost Methods allocate costs to the actuarial accrued liability (i.e. the amount of money that should be in the fund) for past service and normal cost (i.e. the cost of benefits accruing during the year) for current service.
  - The Board of Trustees has adopted Entry Age Normal as its actuarial cost method
  - Develops normal costs that stay level as a percent of payroll

“While in the past many actuarial cost methods were available, Entry Age has emerged as the practice of choice.” - GFOA Best Practice “Core Elements of a Pension Funding Policy”

<http://www.gfoa.org/core-elements-funding-policy>

A detailed summary of the actuarial assumptions and methods is provided in Appendix D.



# Funding Methodology

## Inputs

Membership Data  
Asset Data  
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## Funding Methodology



## Results

Actuarial Value of Assets  
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Projections

The Funding Methodology is the payment plan for LGERS and is composed of the Actuarial Cost Method, the Asset Valuation Method and Amortization Method.

- Asset Valuation Methods smooth or average the market value returns over time to alleviate contribution volatility that results from market returns.
  - Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period
  - Assets corridor: not greater than 120% of market value and not less than 80% of market value

“Asset smoothing methods (aka Actuarial Value of Assets) are still preferred for funding policies” - GFOA Best Practice “Core Elements of a Pension Funding Policy”

<http://www.gfoa.org/core-elements-funding-policy>

A detailed summary of the actuarial assumptions and methods is provided in Appendix D.

# Funding Methodology

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions

## Funding Methodology



## Results

Actuarial Value of Assets  
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The Funding Methodology is the payment plan for LGERS and is composed of the Actuarial Cost Method, the Asset Valuation Method and Amortization Method.

- Amortization Methods determine the payment schedule for unfunded actuarial accrued liability (i.e. the difference between the actuarial accrued liability and actuarial value of assets)
  - Payment level: the payment is determined as a level dollar amount, similar to a mortgage payment
  - Payment period: a 12-year closed amortization period was adopted for fiscal year ending 2012. A new amortization base is created each year based on the prior years' experience.
- For fiscal years beginning subsequent to January 1, 2017, the sum of the "normal contribution" and the "accrued liability contribution" shall not be less than the employee contribution.

When compared to other Public Sector Retirement Systems in the United States, the funding policy for LGERS is quite aggressive in that the policy pays down the pension debt over a much shorter period of time (12 years) compared to the national average of around 24 years. Additionally, payments are developed to stay level instead of the increasing policy many systems use which results in lower payments early on. As such, it is a best practice among public retirement systems.

A detailed summary of the actuarial assumptions and methods is provided in Appendix D.





# Funding Methodology

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions

## Funding Methodology



## Results

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In addition to the ADEC, an unfunded initial prior service liability contribution rate is required for those employers that have not liquidated this liability as of June 30, 2019.

- The unfunded initial prior service liability decreased from \$29.8M to \$25.8M during 2017.
- Using each employer's actual experience during 2017, we have determined that
  - Eleven (11) employers were granted relief at 7/1/2018
  - One (1) employer is expected to be granted relief at 7/1/2019 based on this valuation

For employers who joined the System prior to November 1, 2015, the outstanding balance of the unfunded initial prior service liability and the date of liquidation of the liability will be estimated as of June 30 each year. These estimates must be recalculated annually and adjusted according to each employer's actual experience.

A detailed summary of the actuarial assumptions and methods is provided in Appendix D and I.



# Actuarial Value of Assets

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

Actuarial Value of Assets  
Actuarial Accrued Liability  
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Projections

The table below provides the calculation of the Actuarial Value of Assets (AVA) at the valuation date.

Asset Data as of	12/31/2017
Beginning of Year Market Value of Assets	23,308,817,567
Contributions	866,115,991
Benefit Payments	<u>(1,363,305,171)</u>
Net Cash Flow	(497,189,180)
Expected Investment Return	1,660,647,131
Expected End of Year Market Value of Assets	24,472,275,518
End of Year Market Value of Assets	25,918,361,041
Excess of Market Value over Expected Market Value of Assets	1,446,085,523
80% of 2017 Asset Gain/(Loss)	1,156,868,418
60% of 2016 Asset Gain/(Loss)	(136,503,310)
40% of 2015 Asset Gain/(Loss)	(622,737,226)
20% of 2014 Asset Gain/(Loss)	<u>N/A</u>
Total Deferred Asset Gain/(Loss)	397,627,882
Preliminary End of Year Actuarial Value of Assets	25,520,733,159
Final End of Year Actuarial Value of Asset (not less than 80% and not greater than 120% of Market Value)	25,520,733,159
Estimated Net Investment Return on Actuarial Value	6.59%

In order to reduce the volatility that investment gains and losses can have on the required contributions and funded status of LGERS, the Board adopted an asset valuation method to determine the Actuarial Value of Assets used for funding purposes.

Lower than expected returns in 2015 and 2016 resulted in an actuarial value of asset return for calendar year 2017 of 6.59% despite a return on market of 13.47%.

A detailed summary of the Actuarial Value of Assets is provided in Section 4.



# Actuarial Value of Assets

## Inputs

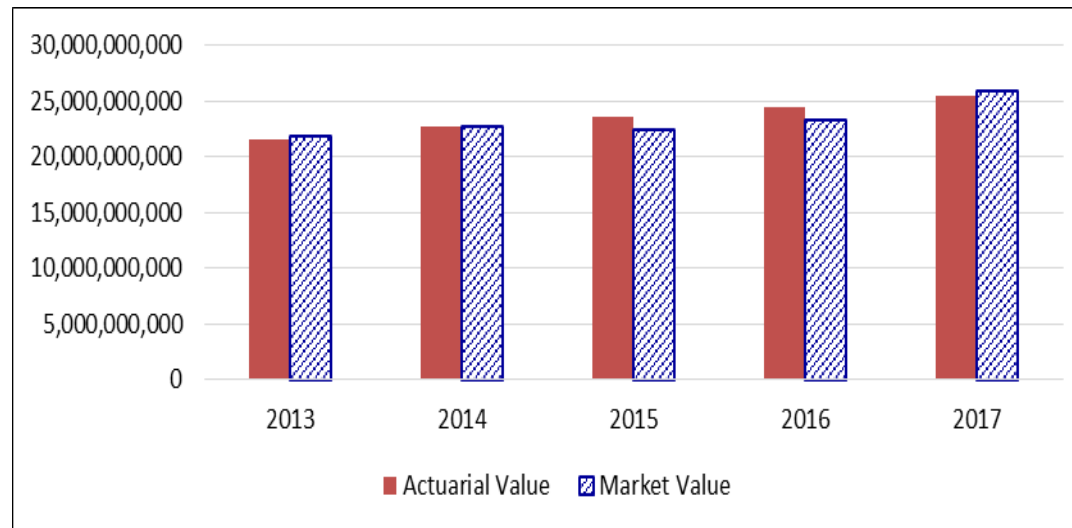
Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

Actuarial Value of Assets  
Actuarial Accrued Liability  
Net Actuarial Gain or Loss  
Funded Ratio  
Employer Contributions  
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Projections

The graph below provides a history of the market value and actuarial value of assets over the past five years.



The market value of assets is higher than the actuarial value of assets, which is used to determine employer contributions. This indicates that overall there are unrecognized asset gains to be recognized in future valuations. However, if the investments earn the expected 7.00% over the next four years, a loss will be recognized in both the December 31, 2018 and the December 31, 2019 valuations, and a gain will be recognized in both the December 31, 2020 and the December 31, 2021 valuations.

A detailed summary of the Actuarial Value of Assets is provided in Section 4.



# Actuarial Value of Assets

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

The table below provides a history of the Actuarial Value and Market Value of Asset Returns. A detailed summary of the Actuarial Value of Assets is provided in Section 4.

Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
1998	9.93%	16.64%
1999	15.61%	9.99%
2000	12.27%	2.65%
2001	8.98%	-1.69%
2002	6.13%	-4.44%
2003	8.52%	18.63%
2004	9.00%	10.77%
2005	8.58%	7.00%
2006	9.19%	11.41%
2007	9.03%	8.36%
2008	2.97%	-19.47%
2009	4.92%	14.94%
2010	6.10%	11.53%
2011	5.33%	2.14%
2012	6.51%	11.79%
2013	7.61%	12.21%
2014	7.32%	6.19%
2015	5.87%	0.34%
2016	5.34%	6.22%
2017	6.59%	13.47%
Average	7.76%	6.57%
Range	12.64%	38.10%

The average investment return recognized for purposes of determining the annual change in contribution each year is the actuarial value of assets return. Currently, the average actuarial return of 7.76% tracks average market return of 6.57% reasonably well. But the range of returns is markedly less – 12.64% versus 38.10%. This results in much lower employer contribution volatility using the actuarial value of assets versus market, while ensuring that the actuarial needs of LGERS are met.



# Actuarial Value of Assets

## Inputs

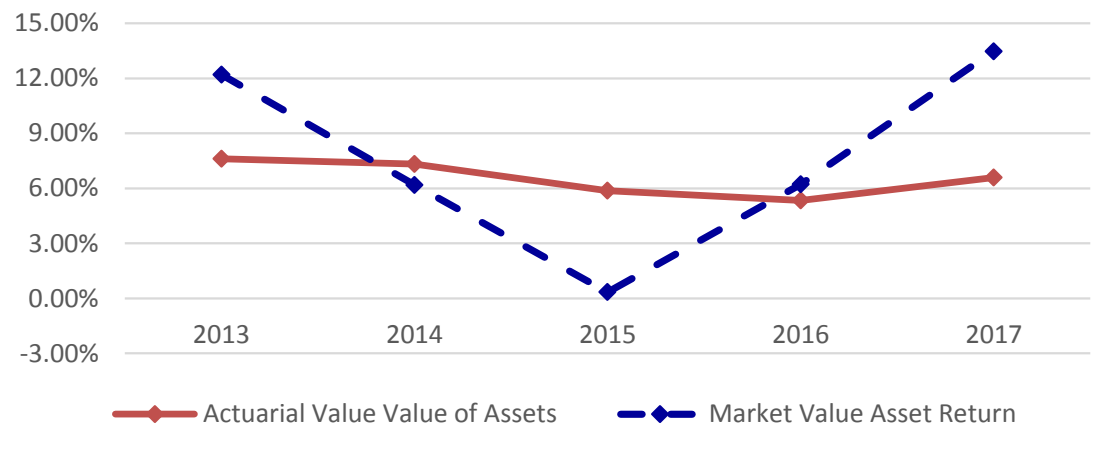
Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

The graph below provides a history of the market value and actuarial value of asset returns over the past five years.



The investment return for the market value of assets for calendar year 2017 was 13.47%. The actuarial value of assets smooths investment gains and losses. Lower than expected market returns in 2015 and 2016 which were partially offset by greater than expected market returns for 2017 resulted in an actuarial value of asset return for calendar year 2017 of 6.59% and a recognized actuarial asset loss of \$148 million during 2017.

A detailed summary of the Actuarial Value of Assets is provided in Section 4.



# Actuarial Accrued Liability

## Inputs

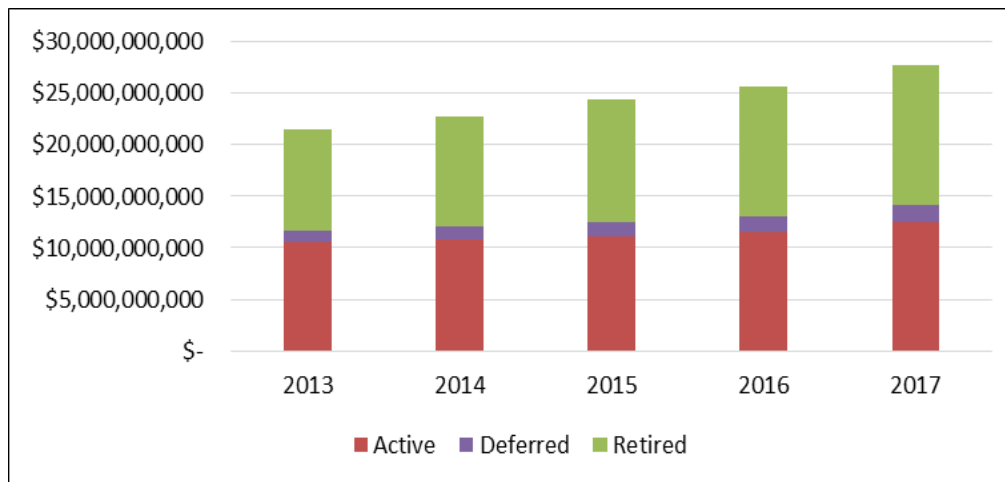
Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

The graph below provides a history of the actuarial accrued liability (AAL) over the past five years.



The AAL increased from \$25.653 billion to \$27.746 billion during 2017. LGERS is an open plan, which means that new members enter the plan each year. In an open plan, liabilities are expected to grow from one year to the next as more benefits accrue and the membership approaches retirement. The AAL was expected to increase by \$1.138 billion due to benefit accruals and interest. Additionally, demographic changes and changes due to the transition to a new actuary increased the AAL by \$369 million, and assumption changes increased the AAL by \$586 million.

A detailed summary of the Actuarial Accrued Liability is provided in Section 5.



# Valuation Results

## AVA and AAL

### Inputs

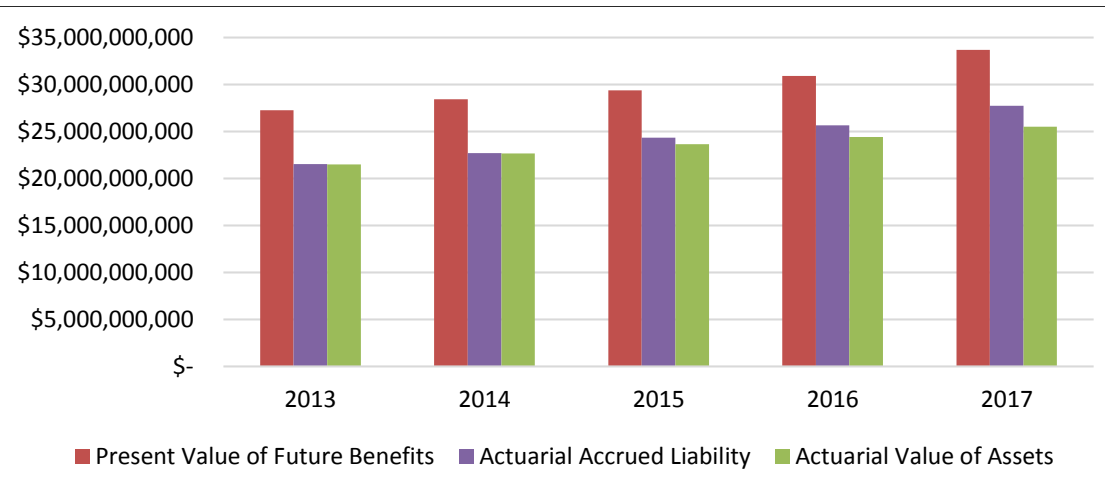
Membership Data  
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### Results

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

The graph below provides a history of the present value of future benefits, the actuarial accrued liability and actuarial value of assets.



The present value of future benefits has increased over the past five years. The present value of future benefits increased from \$30.9 billion at December 31, 2016 to \$33.7 billion at December 31, 2017.

Detailed summaries of the AVA and AAL are provided in Sections 4 and 5 respectively.



# Net Actuarial Gain or Loss

## 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

The table below provides a reconciliation of the prior year's unfunded actuarial accrued liability to the current year's unfunded actuarial accrued liability.

Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2016	1,228,678,168
Transition Changes	248,386,487
Normal Cost and Administrative Expenses during 2017	653,998,051
Reduction due to Actual Contributions during 2017	(866,115,991)
Interest on UAAL, Normal Cost, and Contributions	122,798,243
Asset (Gain)/Loss	148,012,551
Actuarial Accrued Liability (Gain)/Loss	103,430,269
Impact of Assumption Changes	585,946,693
Impact of Legislative Changes	0
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2017	2,225,134,471

During 2017, there was a transition from the prior actuary to CMC, resulting in valuation programming, modifications and differences in methodologies, such as payroll increase timing, that increased the UAAL by \$248 million. In addition, during 2017, the UAAL increased faster than expected primarily due to assumption changes. The change in assumption reflects the change in interest rate from 7.20% to 7.00% and increased the unfunded actuarial accrued liability (UAAL), or pension debt, by \$586 million. The loss recognized in the Actuarial Value of Assets during the year increased the UAAL by \$148 million.

A detailed summary of the net actuarial gain or loss is provided in Section 5.



# Valuation Results

## Funded Ratio



### Inputs

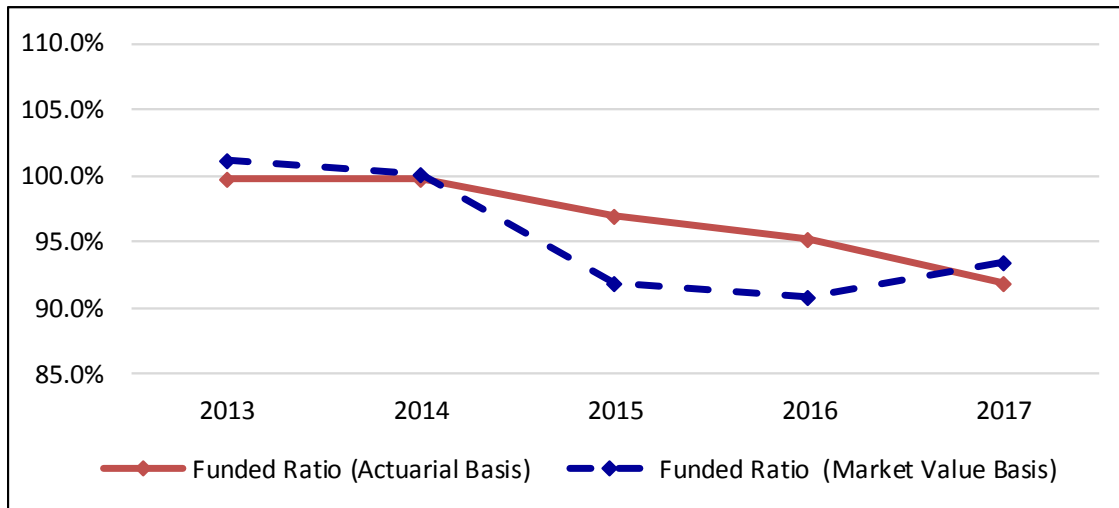
Membership Data  
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Funding Methodology



### Results

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

The graph below provides a history of the funded ratio on a market and actuarial basis over the past five years.



The actuarial value of assets basis is used for computing contributions to alleviate contribution volatility. The funded ratio on an actuarial basis decreased from 95.2% at December 31, 2016 to 92.0% at December 31, 2017. Funded ratios for valuations prior to December 31, 2015 are based on accrued liabilities calculated under the frozen entry age cost method. Under this cost method, the AAL will track closely to assets.

A detailed summary of the funded ratio is provided in Section 5.

# Employer Contributions

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



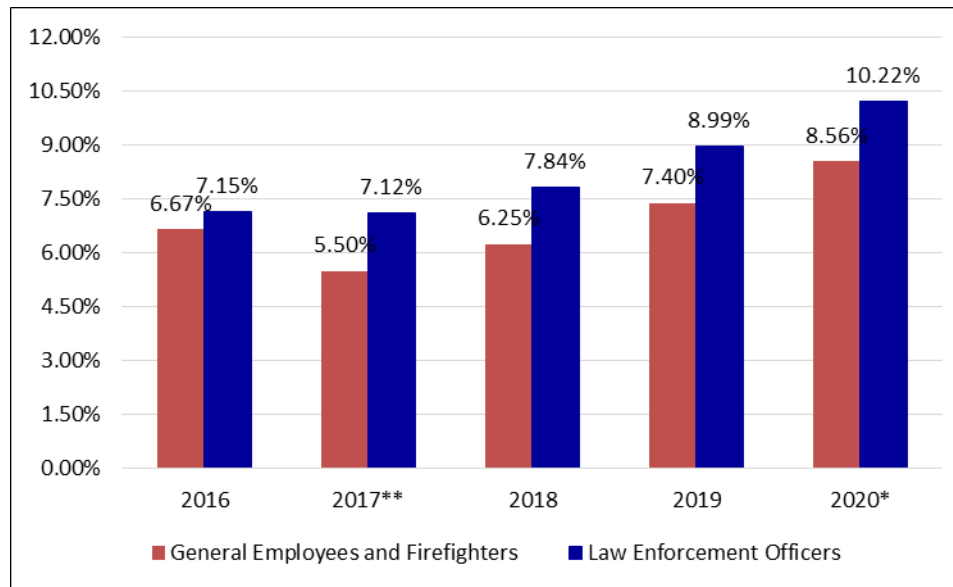
## Results

Actuarial Value of Assets  
Actuarial Accrued Liability  
Net Actuarial Gain or Loss  
Funded Ratio

### Employer Contributions

Benefit Enhancement  
Additional Disclosures  
Projections

The graph below provides a history of actuarially determined employer contribution rates over the past five years.



- \*Subject to the impact of future legislative changes effective during that fiscal year.
- \*\* Includes impact of the experience study

Starting with the contribution for fiscal year ending 2017, the actuarially determined employer contribution rates are split into the normal cost rate and the accrued liability rate. The normal cost rate is the employer's portion of the cost of benefits accruing after reducing for the 6% of pay contribution the members make. The accrued liability rate is the payment toward the unfunded liability needed to pay off the pension debt over 12 years. The 12-year period is a short period for Public Sector Retirement Systems in the United States, with most Systems using a longer period to pay off the pension debt. The shorter period results in higher contributions and more benefit security.

A detailed summary of the actuarially determined employer contribution is provided in Section 6.



# Employer Contributions

## 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

- The Employer Contribution Rate Stabilization Policy (ECRSP) adopted by the Board of Trustees on January 21, 2016 requires that recommended contributions for general employees be set at 7.25% of payroll for fiscal year ending 2017 and will increase each fiscal year by 0.25% per year, with the following additional adjustments, if applicable:
  - If the underlying actuarially determined employer contribution rate (ADEC) for a given fiscal year is 50% higher than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal years increases 0.50%;
  - If the underlying ADEC for a given fiscal year is 50% lower than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal year decreases 0.50%;
  - If the General Assembly grants any additional COLA beyond the amount of COLA granted by the Board, increases the multiplier for active employees, or changes the benefit structure in a way that has a cost to the system, the schedule of contributions for the current and future fiscal years will be increased by the cost of the benefit enhancement. The cost of any COLA granted by the Board under the authority allowed by statute will not impact the scheduled contribution rates.
- Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees. The ECRSP would result in a recommended contribution rate of 8.00% of payroll for general employees and firefighters and 8.75% of payroll for law enforcement officers for fiscal year ending 2020.



# Employer Contributions

## 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

The table below provides a history of the actuarially determined employer contribution and the corresponding actual rate for **General Employees and Firefighters**.

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	8.56%	N/A	N/A	N/A
12/31/2016	7/1/2018	7.40%	0.00%	7.40%	7.75%
12/31/2015	7/1/2017	6.25%	0.00%	6.25%	7.50%
12/31/2014	7/1/2016	6.39%	-0.89%	5.50%	7.25%
12/31/2013	7/1/2015	6.52%	0.15%	6.67%	6.67%
12/31/2012	7/1/2014	6.94%	0.01%	6.95%	7.07%

\*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.92% decrease in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016.

The funding policy contribution rate for fiscal year ending 2020 is 8.00% of payroll. The preliminary ADEC for fiscal year ending 2020 is 8.56% of payroll.

In addition to calculating the ADEC, we calculate the cost of a permanent one-time 1% COLA is equivalent to 0.31% of payroll and each 0.01% increase in benefit rate is equal to 0.36% of payroll.

A detailed summary of the actuarially determined employer contribution rates is provided in Section 6.



# Employer Contributions

## 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

The table below provides a history of the actuarially determined employer contribution and the corresponding actual rate for **Law Enforcement Officers**.

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	10.22%	N/A	N/A	N/A
12/31/2016	7/1/2018	8.99%	0.00%	8.99%	8.50%
12/31/2015	7/1/2017	7.84%	0.00%	7.84%	8.25%
12/31/2014	7/1/2016	6.87%	0.25%	7.12%	8.00%
12/31/2013	7/1/2015	7.00%	0.15%	7.15%	7.15%
12/31/2012	7/1/2014	7.42%	0.01%	7.43%	7.55%

\*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.22% increase in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016

The funding policy contribution rate for fiscal year ending 2020 is 8.75% of payroll. The preliminary ADEC for fiscal year ending 2020 is 10.22% of payroll.

In addition to calculating the ADEC, we calculate the cost of a permanent one-time 1% COLA is equivalent to 0.31% of payroll and each 0.01% increase in benefit rate is equal to 0.37% of payroll.

A detailed summary of the actuarially determined employer contribution rates is provided in Section 6.



# Employer Contributions: ECRSP

## 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

The table below provides a history and projection of the ADEC and ECRSP contributions for both General Employees and Firefighters as well as Law Enforcement Officers in LGERS.

Valuation Date	Rate Effective	General Employees and Firefighters		
		ADEC	ECRSP	Excess/ (Shortfall)
12/31/2019	7/1/2021	9.94%	8.50%	-1.44%
12/31/2018	7/1/2020	9.79%	8.25%	-1.54%
12/31/2017	7/1/2019	8.56%	8.00%	-0.56%
12/31/2016	7/1/2018	7.40%	7.75%	0.35%
12/31/2015	7/1/2017	6.25%	7.50%	1.25%
12/31/2014	7/1/2016	5.50%	7.25%	1.75%
Valuation Date	Rate Effective	Law Enforcement Officers		
		ADEC	ECRSP	Excess/ (Shortfall)
12/31/2019	7/1/2021	11.66%	9.25%	-2.41%
12/31/2018	7/1/2020	11.46%	9.00%	-2.46%
12/31/2017	7/1/2019	10.22%	8.75%	-1.47%
12/31/2016	7/1/2018	8.99%	8.50%	-0.49%
12/31/2015	7/1/2017	7.84%	8.25%	0.41%
12/31/2014	7/1/2016	7.12%	8.00%	0.88%

Before reductions in the investment return assumption for the 2016 and 2017 actuarial valuations, the ECRSP had been successful from the standpoint that the contributions were predictable and generally more than the ADEC. We are projecting shortfalls for the 4<sup>th</sup> and 5<sup>th</sup> year of the ECRSP policy period. Consideration should be given to reviewing the ECRSP policy in light of recent capital markets experience and the decision to change the assumed rate of return.



# Employer Contributions

## 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

The table below provides a reconciliation of the actuarially determined employer contribution.

	General Employees and Firefighters	Law Enforcement Officers
Fiscal year ending June 30, 2019 Preliminary ADEC based on December 31, 2016 valuation	7.40%	8.99%
Impact of Legislative Changes	0.00%	0.00%
Fiscal year ending June 30, 2019 ADEC for Reconciliation	7.40%	8.99%
Change Due to Transition to New Actuary (Gain)/Loss	0.46%	0.52%
Changes Due to Anticipated Reduction in UAAL	-0.08%	-0.08%
Change Due to Demographic (Gain)/Loss	0.18%	0.16%
Change Due to Investment (Gain)/Loss	0.30%	0.30%
Change Due to Contributions Greater than ADEC	-0.26%	-0.26%
Impact of Assumption Changes	1.65%	1.78%
Impact of Direct Rate Smoothing	<u>-1.10%</u>	<u>-1.19%</u>
Fiscal year ending June 30, 2020 Preliminary ADEC based on December 31, 2017 valuation	8.56%	10.22%

The change in rate due to investment loss is based on the actuarial value of assets returns, which was less than the 7.20% assumed return. The impact of the assumption change, the reduction from 7.20% assumed return to 7.00% totaled 1.65% and 1.78% respectively. This will be phased in over the next three years, being fully reflected for the fiscal year ending June 30, 2022.

# Valuation Results

## Potential COLAs



### 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

- Based on the actuarial investment loss recognized in this December 31, 2017, valuation, no Cost-of-Living Adjustment (COLA) that would take effect on July 1, 2019, may be granted by the Board
- Based on the methods and assumptions used for the projections discussed later in the presentation, we estimate that a potential COLA effective July 1, 2020, may be granted by the Board following the December 31, 2018, valuation in the following circumstances:
  - If calendar year 2018 market value returns exceed 7.8% (or about \$1.9B for LGERS), the plan is estimated to have an actuarial investment gain (rather than a loss) for 2018 and a COLA that would take effect on July 1, 2020, could be considered.
  - If calendar year 2018 market value returns exceed 10.9% (or about \$2.7B for LGERS), the plan is estimated to have an actuarial investment gain (rather than a loss) for 2018 and such gain may be enough to provide a 1% COLA that would take effect on July 1, 2020.
    - Estimated actuarial investment gain of \$152.9M
    - Estimated cost of 1% COLA payable to retirees effective July 1, 2020 of \$152.9M

*Note: CMC cannot provide legal advice. This slide should not be interpreted as legal advice as to the Board's ability to provide a COLA to retirees or recommend a COLA to the legislature*

A detailed summary of the actuarially determined employer contribution rates is provided in Section 6.



# Additional Disclosures

## 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

The table below illustrates the sensitivity of certain valuation results to changes in the discount rate on a market value of assets basis.

Discount Rate	2.74%	4.87%	7.00%	9.27%	11.26%
Market Value of Assets	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041
Actuarial Accrued Liability	\$ 47,371,717,458	\$ 35,529,194,403	\$ 27,745,867,630	\$ 22,435,666,297	\$ 18,687,478,633
Unfunded Accrued Liability (UAL)	\$ 21,453,356,417	\$ 9,610,833,362	\$ 1,827,506,589	\$ (3,482,694,744)	\$ (7,230,882,408)
Funded Ratio	54.7%	72.9%	93.4%	115.5%	138.7%
20-Year Amortization of UAL (as % of general local revenue)	\$ 1,419,552,982 8.3%	\$ 788,203,487 4.6%	\$ 182,462,792 1.1%	N/A	N/A

Section 6(c) of Session Law 2016-108 requires that the actuarial valuation report provide the valuation results using a 30-year Treasury rate as of December 31 of the year of the valuation as the discount rate. The 30-year Treasury rate is 2.74% as of December 31, 2017.

The difference between the UAAL measured at 7.00% and 2.74% is \$19.6 billion at December 31, 2017.

A detailed summary of the additional disclosures is provided in Appendix F.

# Additional Disclosures

## 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

The table below provides an estimate of future market value of asset returns based on the study performed in 2016.

Horizon	95% Chance (19 out of every 20 scenarios)	75% Chance (3 out of every 4 scenarios)	50% Chance (1 out of every 2 scenarios)	25% Chance (1 out of every 4 scenarios)	5% Chance (1 out of every 20 scenarios)
10 Years (2025)	0.2%	4.0%	5.9%	8.0%	11.5%
20 Years (2035)	2.2%	4.8%	6.7%	8.5%	11.8%
30 Years (2045)	3.1%	5.3%	7.1%	8.7%	12.0%

These results are summarized in the “TSERS Asset-Liability and Investment Strategy Project” report dated April 19th, 2016 prepared by Conduent, the prior actuary.

The lower bound of 2.74% falls slightly below the 5th percentile of estimated future 30-year returns. In other words, there is less than a 5% chance of seeing a 30-year return of 2.74% or lower based on the study performed in 2016.

A detailed summary of the additional disclosures is provided in Appendix F.

# Valuation Results

## Projections



### 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**

- Projections of actuarially determined employer contribution (ADEC) rates and funded status into the future can be helpful planning tools for stakeholders.
- Projections of the actuarial valuation are known as deterministic projections. Deterministic projections are based on one scenario in the future.
- Baseline deterministic projection is based on:
  - December 31, 2017 valuation results
  - December 31, 2017 valuation assumptions and methods to project future valuation results, including:
    - Valuation interest rate of 7.00% for all years
    - Investment return of 7.00% on market value of assets
  - The contribution rate under the Employer Contribution Rate Stabilization Policy and Direct Rate Smoothing is contributed until fiscal year ending 2022.
  - The ADEC is contributed for fiscal years ending 2023 and beyond.
  - For fiscal years beginning subsequent to January 1, 2017, the sum of the "normal contribution" and the "accrued liability contribution" shall not be less than the employee contribution.
  - 0% increase in total active member population
  - No cost-of-living adjustments granted
  - Future pay increases based on long-term salary increase assumptions
  - Two alternate deterministic projections based on the same assumptions as the baseline deterministic projection, except
    - First alternate deterministic projection assumes a 0% asset return for calendar year 2018.
    - Second alternate deterministic projection assumes a 14% asset return for calendar year 2018.

A detailed summary of the deterministic projections is provided in Section 9.

# Valuation Results

## Projected Contribution Rates – General Employees and Firefighters



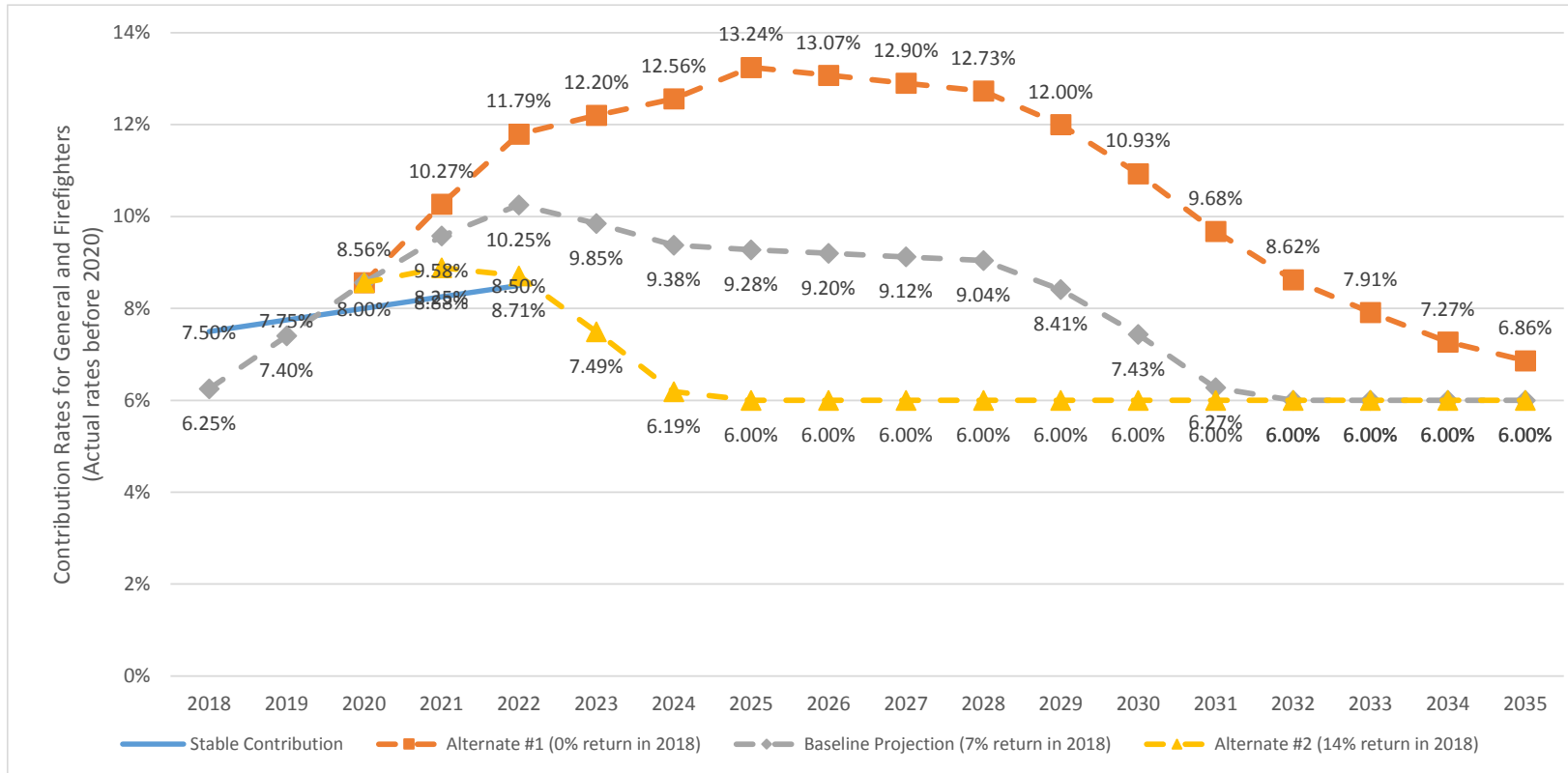
### Inputs

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**



The actuarially determined employer contribution rate trends to around 6%, which is the level of the cost of employer provided benefits accrued, or the long term employer cost of LGERS when there is no pension debt.

A detailed summary of the deterministic projections is provided in Section 9.

# Valuation Results

## Projected Contribution Rates – Law Enforcement Officers



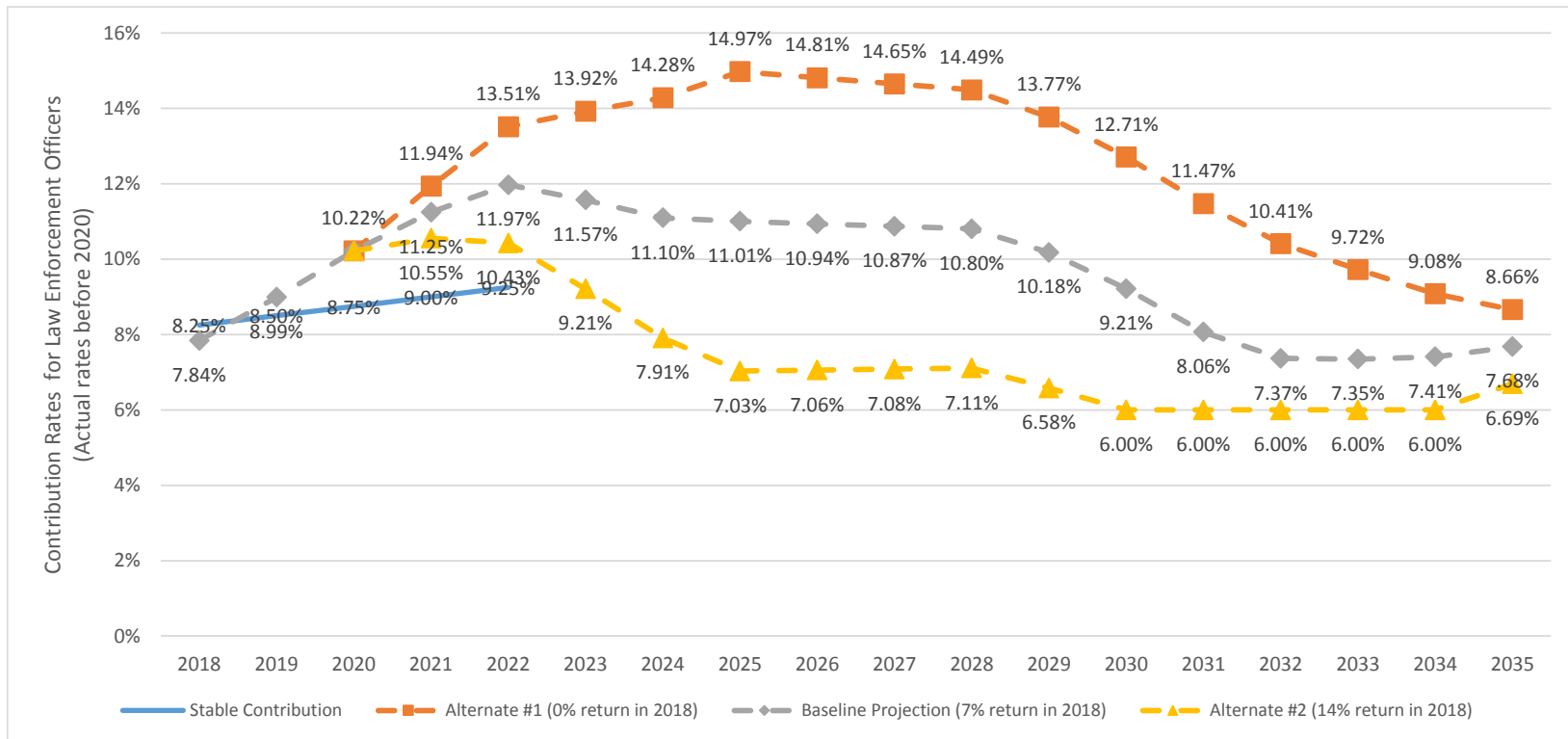
### Inputs

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



The actuarially determined employer contribution rate trends to around 8%, which is the level of the cost of employer provided benefits accrued, or the long term employer cost of LGERS when there is no pension debt.

A detailed summary of the deterministic projections is provided in Section 9.

# Projected Funded Ratio

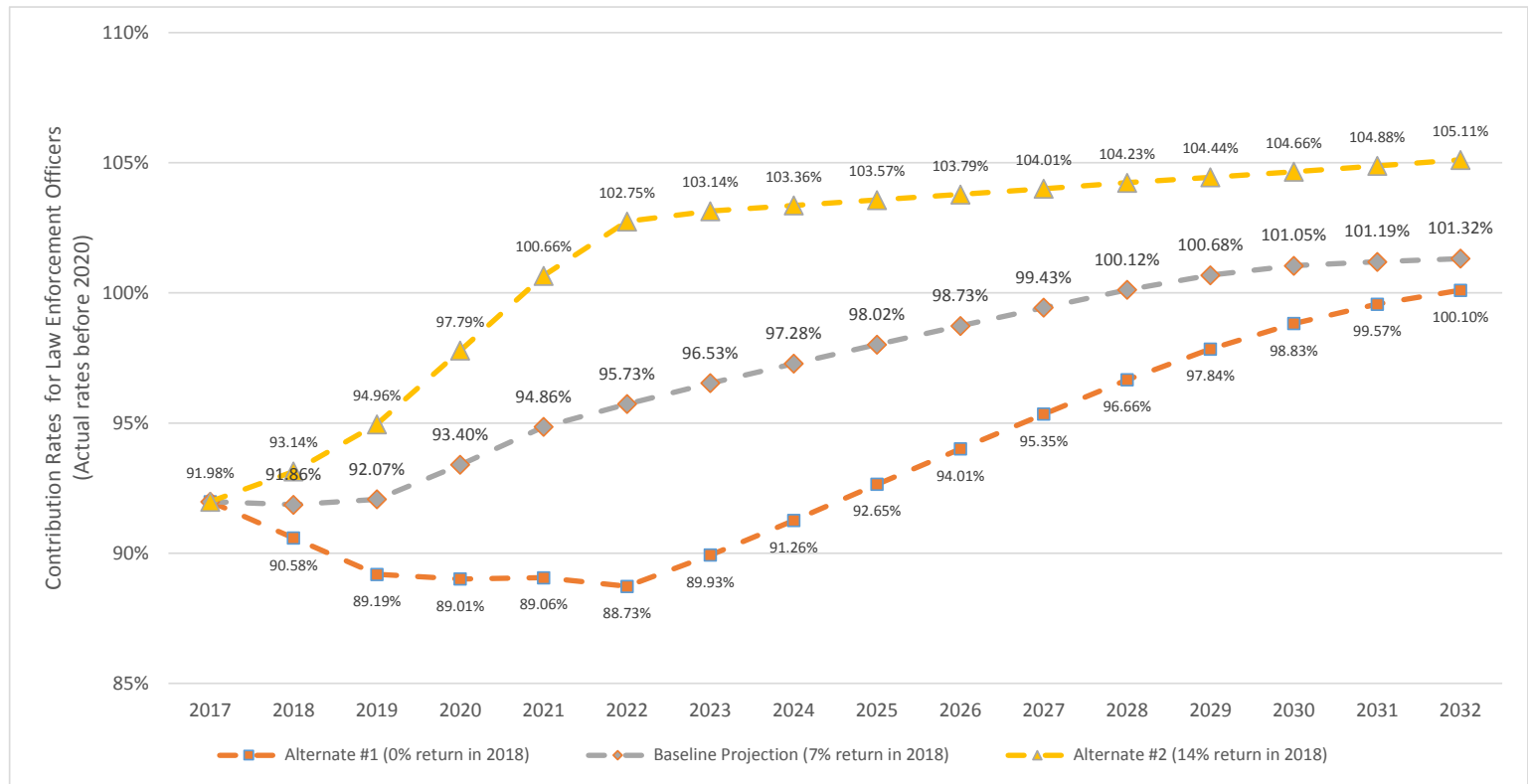
## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

Actuarial Value of Assets  
Actuarial Accrued Liability  
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Funded Ratio  
Employer Contributions  
Benefit Enhancement  
Additional Disclosures  
Projections



Note that if the 7.00% return under the Baseline Projection is achieved, the funded ratio reaches the long term target of 100% within 15 years. This is a direct result of using a 12 year period to pay off the pension debt.

A detailed summary of the deterministic projections is provided in Section 9.



# Key Takeaways

- Market value returns of 13.47% compared to 7.20% assumed
- Increase in covered payroll of 4.0% compared to 3.5% expected
- Change in discount rate from 7.20% to 7.00% as of December 31, 2017 with direct rate smoothing of the change in the employer contribution rates over a three-year period
- Recommended contributions under the Employer Contribution Rate Stabilization Policy (ECRSP) adopted by the Board of Trustees on January 21, 2016 are the same as originally scheduled under the ECRSP when it was adopted, but for the first time, these employer contribution rates for both rate classes are less than the actuarially determined contribution rates.
  - 8.00% of payroll for general employees and firefighters
  - 8.75% of payroll for law enforcement officers



# Key Takeaways (continued)

- Higher actuarially determined employer contribution rates for fiscal year ending June 30, 2020
  - 8.56% in the valuation compared to 8.02% in the baseline projection for general employees and firefighters
  - 10.22% in the valuation compared to 9.60% in the baseline projection for law enforcement officers
  - ECRSP policy should be reviewed by the Board in light of capital market performance and the change to the assumed investment rate of return.
- Higher projected benefit amounts being accrued by active members



# Key Takeaways (continued)

- LGERS is well funded compared to its peers. This is due to:
  - Stakeholders working together to keep LGERS well-funded since inception
  - A history of contributing the recommended contribution requirements
  - Assumptions that in aggregate are more conservative than peers
  - A funding policy that aggressively pays down unfunded liability over a 12-year period
  - An ad hoc cost-of-living adjustment, which typically only provides benefit increases when certain financial conditions are met, supports the health of the system
  - Modest changes in benefits when compared to peers
- As has been done over the past 75 + years, continued focus on these measures will be needed to maintain the sustainability of LGERS well into the future

# 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*

# North Carolina Local Governmental Employees' Retirement System

Report on the Actuarial Valuation  
Prepared as of December 31, 2017

Restated January 2019





# Cavanaugh Macdonald

## CONSULTING, LLC

*The experience and dedication you deserve*

January 25, 2019

Board of Trustees  
North Carolina Local Governmental  
Employees' Retirement System  
3200 Atlantic Avenue  
Raleigh, NC 27604

### Members of the Board:

We submit herewith our report on the actuarial valuation of the North Carolina Local Governmental Employees' Retirement System (referred to as "LGERS" or the "Local Plan") prepared as of December 31, 2017. The report has been prepared in accordance with North Carolina General Statute 128-28(p). Information contained in our report for plan years prior to December 31, 2017 is based upon valuations performed by the prior actuary.

The primary purpose of the valuation report is to determine the required member and employer contribution rates, to describe the current financial condition of LGERS, and to analyze changes in such 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. Sometimes assumptions are made by CMC to interpret membership data that is imperfect. 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 and also comply with the requirements of GASB Statement No. 67. 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, 2017 actuarial valuation are based on the experience study prepared as of December 31, 2014 and adopted by the Board of Trustees on January 21, 2016, as further updated to use a discount rate of 7.00% in conjunction with direct rate smoothing of the employer contribution rate, as adopted by the Board of Trustees on April 26, 2018. 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.

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

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 or 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 financial projections or required disclosure information.

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 stylized, handwritten signature in blue ink, consisting of a large 'L' followed by a series of loops and a horizontal stroke at the end.

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

A handwritten signature in blue ink that reads 'Jonathan T. Craven' in a cursive script.

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



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## Executive Summary

### Overview

The North Carolina Retirement Systems Division (RSD) was established in 1941 to provide retirement benefits for public servants in the State of North Carolina. Today, under the management of the Department of State Treasurer, RSD administers seven public pension plans (defined benefit plans), three supplemental retirement plans (voluntary defined contributions plans), a health trust fund, a disability income plan, death benefit funds and a number of other benefit programs. As of December 31, 2017, the RSD defined benefit plans cover over one million current and prior public servants of the state of North Carolina. During the fiscal year ending June 30, 2017, RSD paid over \$6.0 billion in pensions to more than 300,000 retirees. And as of June 30, 2018, RSD's defined benefit plan assets were valued at over \$98 billion.

Under the supplemental retirement plans, the amount of contributions in any given year is defined by law. The amount of benefits derived is dependent on the investment returns the individual achieves. Conversely, under the pension plans, the amount of the benefit paid to a member upon retirement, termination, death or disability is defined by law. The amount of contributions needed to fund these benefits cannot be known with certainty. In North Carolina, like other states, these contributions are paid during a public servant's career so that upon retirement, termination, death, or disability, there are funds available to pay these benefits. These amounts are determined through an actuarial valuation. Actuarial valuations are performed for each of the pension plans administered by RSD and the results are contained in actuarial valuation reports like this.

The Local Governmental Employees' Retirement System (referred to as "LGERS" or the "Local Plan") was established in 1939 and began accepting participating employers in 1945. LGERS is maintained for the employees of cities, towns, counties, boards, commissions and other entities of local government in North Carolina. LGERS has over \$25 billion in assets and more than 265,000 members. This actuarial valuation report is our annual analysis of the financial health of LGERS. This report, prepared as of December 31, 2017, presents the results of the actuarial valuation of LGERS.

### Purpose

An actuarial valuation is performed on LGERS annually as of the end of the calendar year. The actuary determines the amount of contributions to be made to LGERS during each member's career that, when combined with investment return, will be sufficient to pay for retirement benefits.

In addition, the annual actuarial valuation is performed to:

- Determine the required contribution rates for LGERS employers,
- Explore why the results of the current valuation differ from the results of the valuation of the previous year, and
- Satisfy regulatory and accounting requirements.

A detailed summary of the valuation process and a glossary of actuarial terms are provided in Appendix A.



## Executive Summary (continued)

### Key Takeaways

The actuarial valuation is performed each year to replace the estimates the actuary assumed for the prior valuation with the actual events that happened. This past year, as expected, some of the assumptions used in the prior valuation were not realized. Key results of the December 31, 2017 valuation as compared to the December 31, 2016 valuation were:

- Market value returns of 13.47% during calendar year 2017 compared to 7.20% assumed
- Change in discount rate from 7.20% to 7.00% as of December 31, 2017 with direct rate smoothing of the change in the employer contribution rates over a three-year period
- Recommended contributions under the Employer Contribution Rate Stabilization Policy (ECRSP) adopted by the Board of Trustees on January 21, 2016 remain on schedule for fiscal year ending 2020
  - 8.00% of payroll for general employees
  - 8.75% of payroll for law enforcement officers

When compared to the December 31, 2016 projections, the above resulted in:

- A lower funded ratio as of December 31, 2017 (92.0% in the valuation compared to 94.2% in the baseline projection)
- Higher actuarially determined employer contribution rates for fiscal year ending June 30, 2020
  - 8.56% in the valuation compared to 8.02% in the baseline projection for general employees and firefighters
  - 10.22% in the valuation compared to 9.60% in the baseline projection for law enforcement officers
  - Actuarially determined employer contribution rates for both rate classes are higher than ECRSP rates for the first time since the policy was adopted.
    - General Employees/Firefighter ECRSP of 8.00% vs. ADEC of 8.56%
    - Law Enforcement Officer ECRSP of 8.75% vs. ADEC of 10.22%

LGERS is well funded compared to its peers. This is due to:

- Stakeholders working together to keep LGERS well-funded since inception
- A history of contributing the recommended contribution requirements
- Assumptions that in aggregate are more conservative than peers
- A funding policy that aggressively adjusts contribution rates to pay down unfunded liability
- An ad hoc cost-of-living adjustment, which typically only provides benefit increases when certain financial conditions are met, that supports the health of the system
- Modest changes in benefits when compared to peers

Continued focus on these measures will be needed to maintain the solid status of LGERS well into the future.

More details can be found later in this report. We encourage readers to start with Sections 1 and 2 and refer to other sections for additional details as needed.



## Section 1: Principal Results

This report, prepared as of December 31, 2017, presents the results of the annual valuation of the system. 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 Results as of	12/31/2017	12/31/2016
Active Members		
Number	128,779	126,647
Reported Compensation	\$5,944,507,039	\$5,716,583,136
Valuation Compensation*	\$6,452,755,259	\$6,048,808,955
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	68,766	65,930
Annual Allowances	\$1,324,257,015	\$1,251,874,605
Number of Participating Employers	894	888
Assets		
Actuarial Value (AVA)	\$25,520,733,159	\$24,424,927,820
Market Value	\$25,918,361,041	\$23,308,817,567
Actuarial Accrued Liability (AAL)	\$27,745,867,630	\$25,653,605,988
Unfunded Accrued Liability (AAL-AVA)	\$2,225,134,471	\$1,228,678,168
Funded Ratio (AVA/AAL)**	92.0%	95.2%
Unfunded Initial Prior Service Liability	\$25,764,186	\$29,688,150

\* Reported compensation annualized for new hires and projected for valuation purposes.

\*\*The Funded Ratio on a Market Value of Assets basis is 93.4% at December 31, 2017.



## Section 1: Principal Results

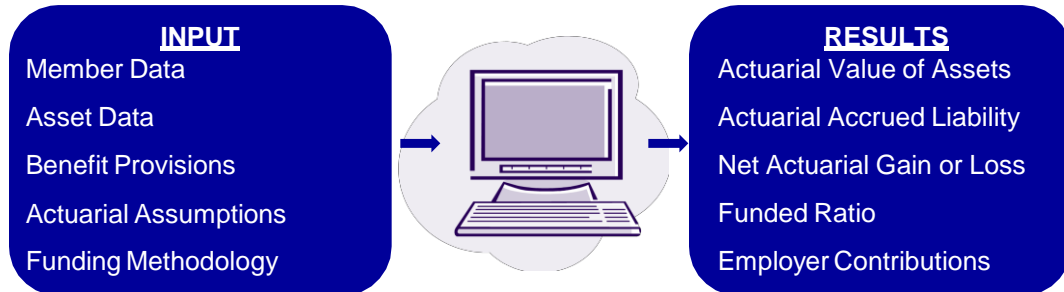
This report, prepared as of December 31, 2017, presents the results of the annual valuation of the system. The principal results of the valuation and a comparison with the preceding year's results are summarized below.

**Table 1: Summary of Principal Results (continued)**

Valuation Results as of	12/31/2017	12/31/2016
Results for Fiscal Year Ending	6/30/2020	6/30/2019
Actuarially Determined Employer Contribution (ADEC), as a percentage of payroll		
General Employees and Firefighters		
Normal Cost	5.39%	4.81%
Accrued Liability	<u>4.27%</u>	<u>2.59%</u>
Total Preliminary ADEC	9.66%	7.40%
Total Based on Direct Rate Smoothing	8.56%	N/A
Impact of Legislative Changes	<u>N/A</u>	<u>0.00%</u>
Final ADEC	8.56%	7.40%
Law Enforcement Officers		
Normal Cost	7.14%	6.40%
Accrued Liability	<u>4.27%</u>	<u>2.59%</u>
Total Preliminary ADEC	11.41%	8.99%
Total Based on Direct Rate Smoothing	10.22%	N/A
Impact of Legislative Changes	<u>N/A</u>	<u>0.00%</u>
Final ADEC	10.22%	8.99%
Board Approved Contribution under the Employer Contribution Rate Stabilization Policy (ECRSP)		
General Employees and Firefighters	8.00%	7.75%
Law Enforcement Officers	8.75%	8.50%
<b>Current Funding in Effect at</b>	<b>7/1/2018</b>	<b>7/1/2017</b>
Employer Contribution Rate as a percentage of payroll		
General Employees and Firefighters	7.75%	7.50%
Law Enforcement Officers	8.50%	8.25%
Preliminary Reserve for Undistributed Gains/(Losses)		
General Employees and Firefighters	(0.81%)	0.10%
Law Enforcement Officers	(1.72%)	(0.74%)

## Section 2: The Valuation Process

The following diagram summarizes the inputs and results of the actuarial valuation process.



A more detailed description of the valuation process is provided in Appendix A.

### Valuation Input: Membership Data

As with any estimate, the actuary collects information that we know now. Under the actuarial valuation process, current information about LGERS members is collected annually by the Retirement Systems Division staff at the direction of the actuary. Membership data will assist the actuary in estimating benefits that could be paid in the future. Information about benefit provisions and assets held in the trust as of the valuation date is also collected.

The member information the actuary collects includes data elements such as current service, salary and benefit group identifier for members that have not separated service, and actual benefit amounts and form of payment for members that have separated service. Data elements such as gender and date of birth are used to determine when a benefit might be paid and for how long.



## Section 2: The Valuation Process

### Valuation Input: Membership Data (continued)

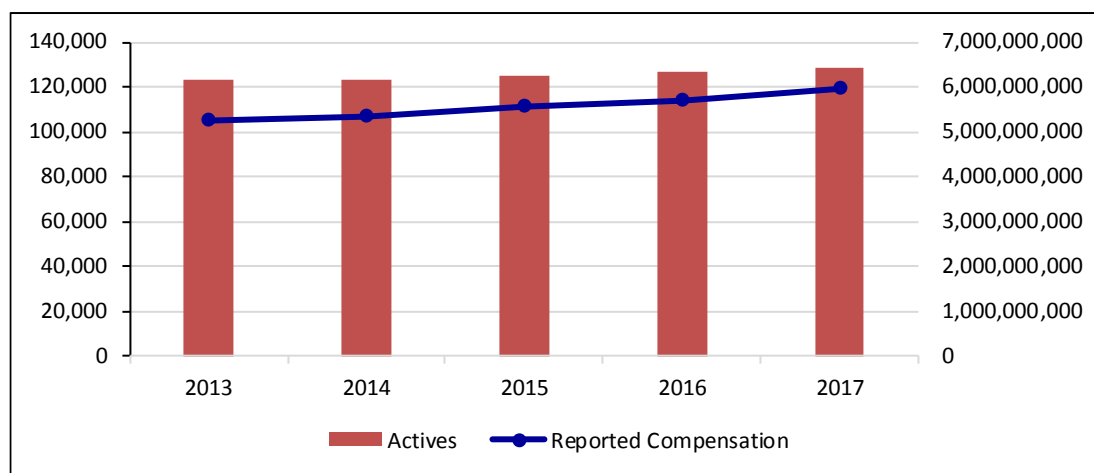
The table below provides a summary of the membership data used in this valuation compared to the prior valuation.

	12/31/2017	12/31/2016
Active Members	128,779	126,647
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	68,243	63,682
Retired members and survivors of deceased members currently receiving benefits	68,766	65,930
Total	265,788	256,259

**Commentary:** The number of active members increased by 1.7% from the previous valuation date. The increase in the active population results in more benefits accruing, but also more contributions supporting the system. The number of retired members and survivors of deceased members currently receiving benefits increased by 4.3% from the previous valuation date. The increase in retiree population is consistent with expectations.

### Graph 1: Active Members

The graph below provides a history of the number of active members and reported compensation over the past five years.



**Commentary:** Reported compensation has increased by 4.0%. Covered payroll is expected to increase by 3.5% annually in the future. Payroll that is increasing faster than we assume results in more benefits accruing than we anticipate, but also more contributions supporting the system.

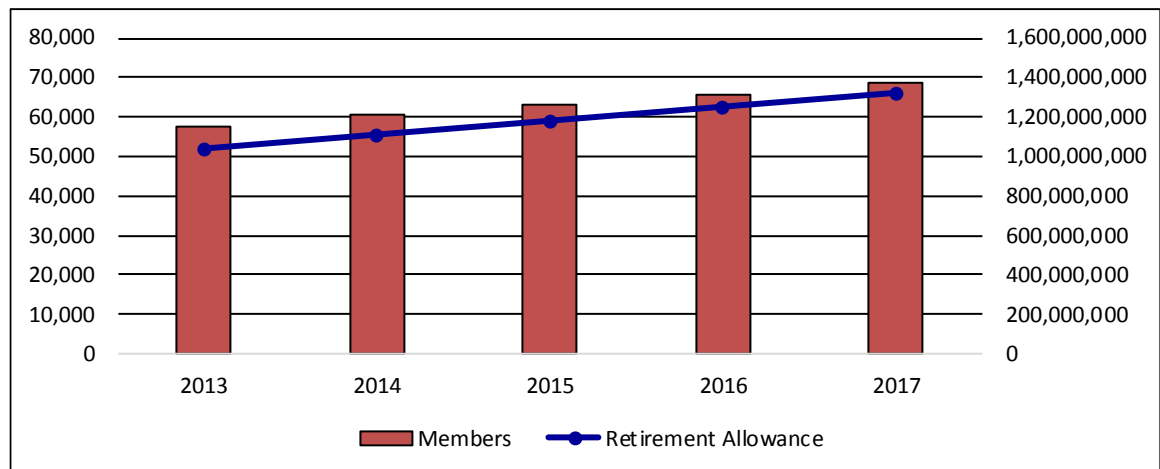


## Section 2: The Valuation Process

### Valuation Input: Membership Data (continued)

#### Graph 2: Retired Members and Survivors of Deceased Members

The graph below provides a history of the number of retired members and survivors of deceased members and benefit amounts payable over the past five years.



**Commentary:** The number of retired members and survivors of deceased members and the benefits paid to these members has been increasing steadily, as expected based on plan assumptions.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B of this report.



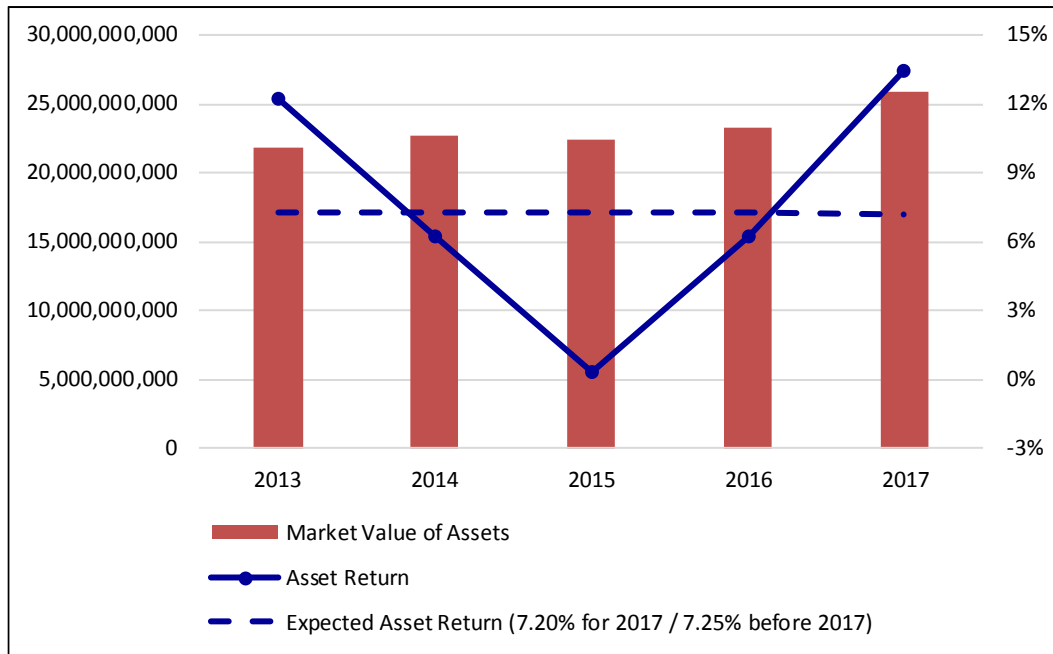
## Section 2: The Valuation Process

### Valuation Input: Asset Data

LGERS assets are held in trust and are invested for the exclusive benefit of plan members. The Market Value of Assets is \$25.9 billion as of December 31, 2017 and \$23.3 billion as of December 31, 2016. The investment return for the market value of assets for calendar year 2017 was 13.47%.

#### Graph 3: Market Value of Assets and Asset Returns

The graph below provides a history of the market value of assets and asset returns over the past five years.



**Commentary:** Market value returns exceeded the assumed rate of return for the first time since 2013. However, the return on the actuarial value of assets which is used to determine the contribution rates did not exceed the 7.20% assumed rate of return in 2017 because of delayed recognition of less than expected returns in 2015 and 2016.



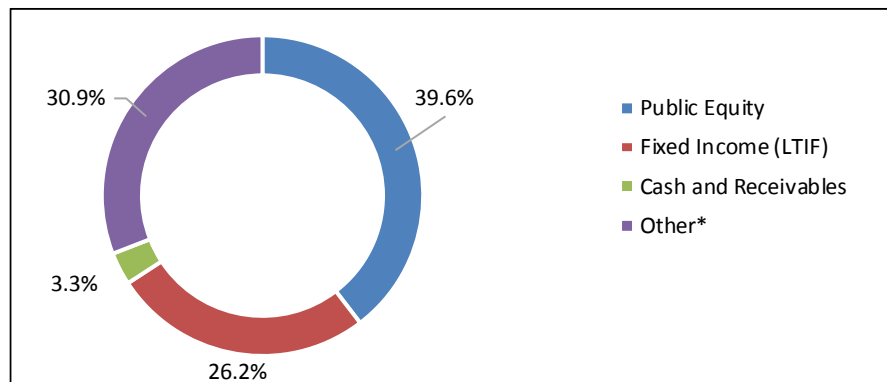


## Section 2: The Valuation Process

### Valuation Input: Asset Data (continued)

#### Graph 4: Allocation of Investments by Category

The graph below provides the breakdown of the market value of assets at December 31, 2017 by asset category.



\* Real Estate, Alternatives, Inflation and Credit

**Commentary:** Based on historical market returns, the current asset allocation, the current investment policy, and the expectation of future asset returns, as reviewed in the last experience study, the 7.00% discount rate used in this valuation is reasonable and appropriate.

A detailed summary of the market value of assets is provided in Section 4 of this report.



## Section 2: The Valuation Process

### Valuation Input: Benefit Provisions

Benefit provisions are described in North Carolina General Statutes, Chapter 128.

This valuation reflects the following change in benefit provisions from the prior year's valuation:

- Addition of eligibility for reduced benefits after 25 years of service for law enforcement officers. (We are assuming no one elects to retire under this provision since it would reduce the actuarial value of their benefit from this plan).

Highlights of the benefit provisions are described below.

- An unreduced retirement allowance is payable to non-law enforcement members who retire from service:
  - after attaining age 65 and five years of creditable service;
  - after attaining age 60 and 25 years of creditable service; or
  - after attaining 30 years of creditable service
- An unreduced retirement allowance is payable to law enforcement members who retire from service:
  - after attaining age 55 and five years of creditable service; or
  - after attaining 30 years of creditable service
- The unreduced retirement allowance is equal to 1.85% of a member's final average compensation multiplied by the number of years of creditable service.
- A reduced retirement allowance is payable to non-law enforcement members who retire from service:
  - after attaining age 60 and five years of creditable service; or
  - after attaining age 50 and 20 years of creditable service
- A reduced retirement allowance is payable to firefighters and rescue squad workers who retire from service after attaining age 55 and five years of creditable service.
- A reduced retirement allowance is payable to law enforcement members who retire from service after attaining age 50 and 15 years of creditable service or after attaining 25 years of creditable service.
- Ancillary benefits are also payable upon the death or disability of a member.
- LGERS does not provide for explicit cost of living increases as part of the benefit package. Instead, increases may be provided if certain financial conditions are met. More details on cost-of-living increases are provided in Graph 5.

**Commentary:** Many Public Sector Retirement Systems in the United States have undergone pension reform where the benefits of members (active or future members) have been reduced. Because of the well-funded status of LGERS, benefit cuts have not been made in North Carolina as they have been in most other states. Instead, we have seen a modest expansion of benefits in recent years based on sound plan design. However, if North Carolina's investment policy shifts substantively or if the system incurs other unfavorable investment, economic, or demographic experience, the system should review likely impacts of the shift and consider corresponding changes to actuarial assumptions, funding policy and/or benefit levels.



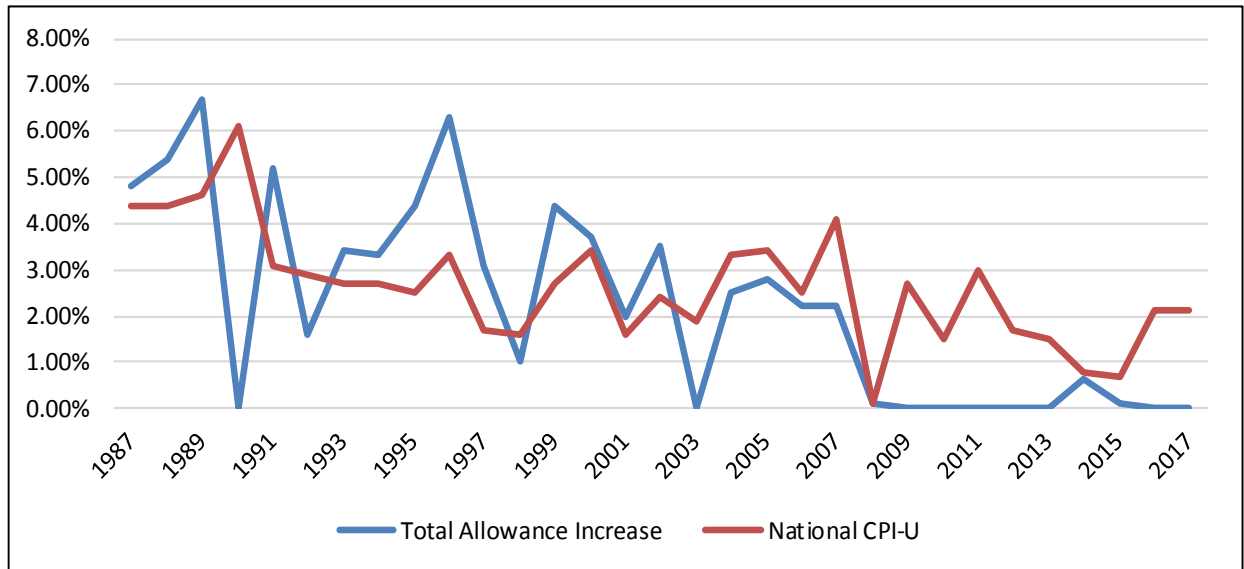
## Section 2: The Valuation Process

### Valuation Input: Benefit Provisions (continued)

As noted previously, cost-of-living increases are periodically considered by the Board of Trustees to the extent that certain financial conditions are met. Specifically, benefit allowance increases are generally considered when the trust experiences sufficient investment gains to cover the additional actuarial accrued liabilities created by providing the cost-of-living adjustment (generally, limited to the lesser of the CPI increase year-over-year or 4%). In addition to employers consistently contributing the actuary's recommended contribution, this benefit increase policy has helped keep costs manageable when compared to other public sector retirement systems in the United States. That being said, it is important to provide a benefit in retirement that does not get eroded by inflation.

#### Graph 5: Cost-of-Living Increase and CPI-U History

The graph below provides a 30-year history of the allowance increases for LGERS and the national CPI-U.



\* Allowance increases are effective at July 1 the following year

**Commentary:** Generally this allowance increase policy has helped retirees maintain purchasing power while helping to moderate contribution increases during times of down markets.

A detailed summary of the benefit provisions is provided in Appendix C of this report.

### Valuation Input: Actuarial Assumptions

Actuarial assumptions bridge the gap between the information that we know with certainty as of the valuation date (age, gender, service, pay, and benefits of the members) and what may happen in the future. The actuarial assumptions of LGERS are reviewed at least every five years. Based on this review, the actuary will make recommendations on the demographic and economic assumptions.

Demographic assumptions describe future events that relate to people such as retirement rates, termination rates, disability rates, and mortality rates. Economic assumptions describe future events that relate to the assets of LGERS such as the interest rate, salary increases, the real return, and payroll growth.



## Section 2: The Valuation Process

### Valuation Input: Actuarial Assumptions (continued)

The assumptions used for the December 31, 2017 actuarial valuation, with the exception of the discount rate, are based on the experience study prepared as of December 31, 2014 and adopted by the Board of Trustees on January 21, 2016. The discount rate was updated to be 7.00%, as adopted by the Board of Trustees on April 26, 2018.

### Valuation Input: Funding Methodology

The Funding Methodology is the payment plan for LGERS and is composed of the following three components:

- Actuarial Cost Methods allocate costs to the actuarial accrued liability (i.e. the amount of money that should be in the LGERS fund) for past service and normal cost (i.e. the cost of benefits accruing during the year) for current service.
  - The Board of Trustees has adopted Entry Age Normal as its actuarial cost method
  - Develops normal costs that stay level as a percent of payroll
- Asset Valuation Methods smooth or average the market value returns over time to alleviate contribution volatility that results from market returns.
  - Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period
  - Assets corridor: not greater than 120% of market value and not less than 80% of market value
- Amortization Methods determine the payment schedule for unfunded actuarial accrued liability (i.e. the difference between the actuarial accrued liability and actuarial value of assets)
  - Payment level: the payment is determined as a level dollar amount, similar to a mortgage payment
  - Payment period: a 12-year closed amortization period was adopted for fiscal year ending 2018. A new amortization base is created each year based on the prior years' experience

The valuation reflects the change in methodology for determining liquidation of unfunded initial prior service accrued liability, approved by the Board of Trustees in January 2012. The outstanding balance of the unfunded initial prior service accrued liability and the date of liquidation of accrued liability will be estimated as of June 30 each year. These estimates must be recalculated annually and adjusted according to each employer's actual experience.

- Eleven (11) employers were granted relief at 7/1/2018
- One (1) employer is expected to be granted relief at 7/1/2019 based on this valuation

A detailed summary of the actuarial assumptions and methods is provided in Appendix D of this report.



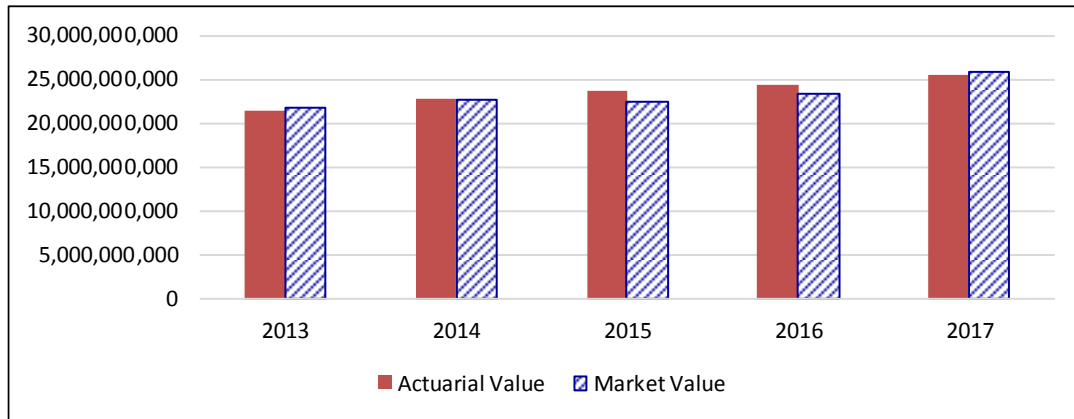
## Section 2: The Valuation Process

### Valuation Results: Actuarial Value of Assets

In order to reduce the volatility that investment gains and losses can have on required contributions and funded status of LGERS, the Board adopted an asset valuation method to determine the Actuarial Value of Assets used for funding purposes. The Actuarial Value of Assets is \$25.5 billion as of December 31, 2017 and \$24.4 billion as of December 31, 2016.

#### Graph 6: Actuarial Value and Market Value of Assets

The graph below provides a history of the market value and actuarial value of assets over the past five years.



**Commentary:** The market value of assets is higher than the actuarial value of assets, which is used to determine employer contributions. This indicates that overall there are unrecognized asset gains to be recognized in future valuations. However, if the investments earn the expected 7.00% over the next four years, a loss will be recognized in both the December 31, 2018 and the December 31, 2019 valuations, and a gain will be recognized in both the December 31, 2020 and the December 31, 2021 valuations.

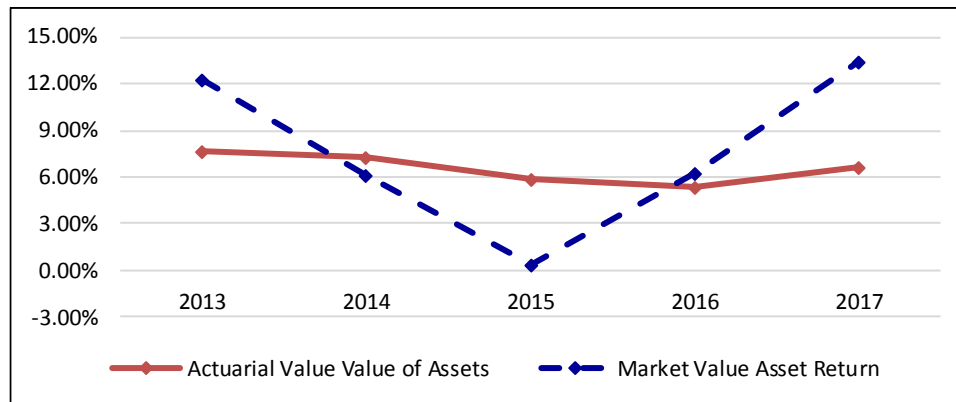


## Section 2: The Valuation Process

### Valuation Results: Actuarial Value of Assets (continued)

#### Graph 7: Asset Returns

The graph below provides a history of the market value and actuarial value of asset returns over the past five years.



**Commentary:** The investment return for the market value of assets for calendar year 2017 was 13.47%. The actuarial value of assets smooths investment gains and losses. Lower than expected market returns in 2015 and 2016 which were partially offset by greater than expected market returns for 2017 resulted in an actuarial value of asset return for calendar year 2017 of 6.59% and a recognized actuarial asset loss of \$148 million during 2017.

A detailed summary of the Actuarial Value of Assets is provided in Section 4 of this report.



## Section 2: The Valuation Process

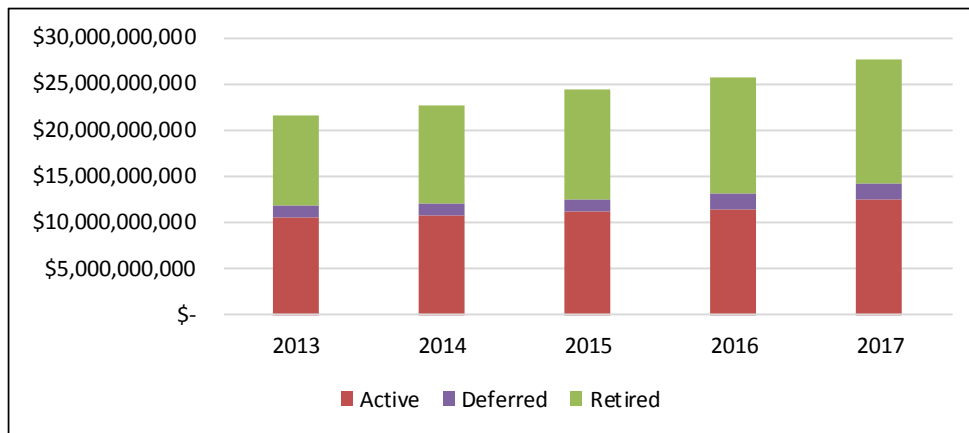
### Valuation Results: Actuarial Accrued Liability

Using the provided membership data, benefit provisions, and actuarial assumptions, the future benefit payments of LGERS are estimated. These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of LGERS. The PVFB is an estimate of the current value of the benefits promised to all members as of a valuation date.

Once the PVFB is developed, an actuarial cost method is used to allocate the PVFB. Under the actuarial cost method, the PVFB is allocated to past, current and future service, respectively known as the actuarial accrued liability (AAL), normal cost (NC) and present value of future normal costs (PVFNC). The AAL is also referred to as the amount of money LGERS should ideally have in the trust. The NC is also referred to as the cost of benefits accruing during the year.

#### Graph 8: Actuarial Accrued Liability

The graph below provides a history of the actuarial accrued liability over the past five years.



**Commentary:** The AAL increased from \$25.653 billion to \$27.746 billion during 2017. LGERS is an open plan, which means that new members enter the plan each year. In an open plan, liabilities are expected to grow from one year to the next as more benefits accrue and the membership approaches retirement. The AAL was expected to increase by \$1.138 billion due to benefit accruals and interest. Additionally, demographic changes and changes due to the transition to a new actuary increased the AAL by \$369 million, and assumption changes increased the AAL by \$586 million.

A detailed summary of the AAL is provided in Section 5 of this report.



## Section 2: The Valuation Process

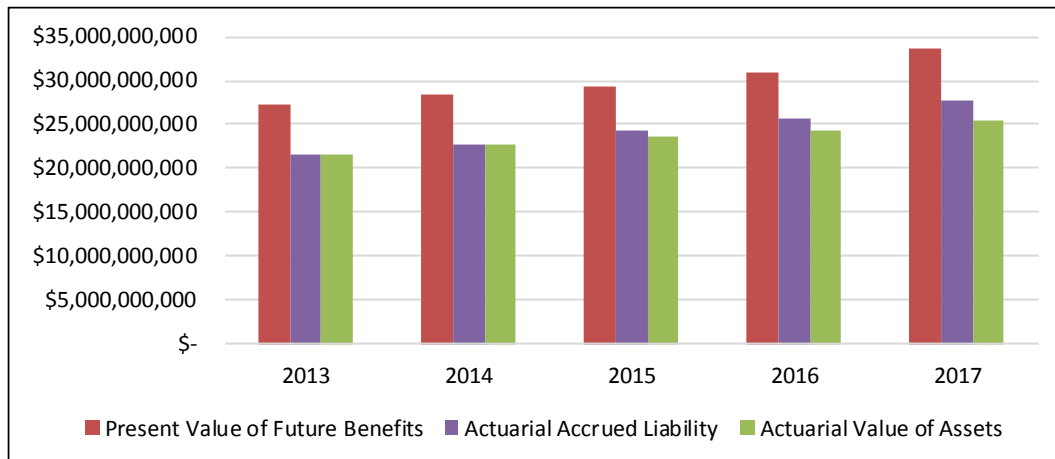
### Valuation Results: Funded Ratio

The funded ratio is a measure of the progress that has been made in funding the plan as of the valuation date. It is the ratio of how much money LGERS actually has in the fund to the amount LGERS should have in the fund.

The actuarial cost method was changed to the entry age normal cost method from a frozen entry age cost method as of the December 31, 2015 valuation. Separate initial unfunded prior service cost accrued liabilities are maintained for employers who joined the system prior to November 1, 2015. Under the frozen entry age cost method, the funding target is the present value of future benefits, which includes the cost of service for past, current and future service. Under the entry age normal cost method, the funding target is the actuarial accrued liability, which includes the cost of service for only past service.

### Graph 9: Present Value of Future Benefits, Actuarial Accrued Liability and Actuarial Value of Assets

The graph below provides a history of the present value of future benefits and actuarial accrued liability compared to the actuarial value of assets over the past five years.



**Commentary:** The present value of future benefits has increased over the past five years. The present value of future benefits increased from \$30.9 billion at December 31, 2016 to \$33.7 billion at December 31, 2017.



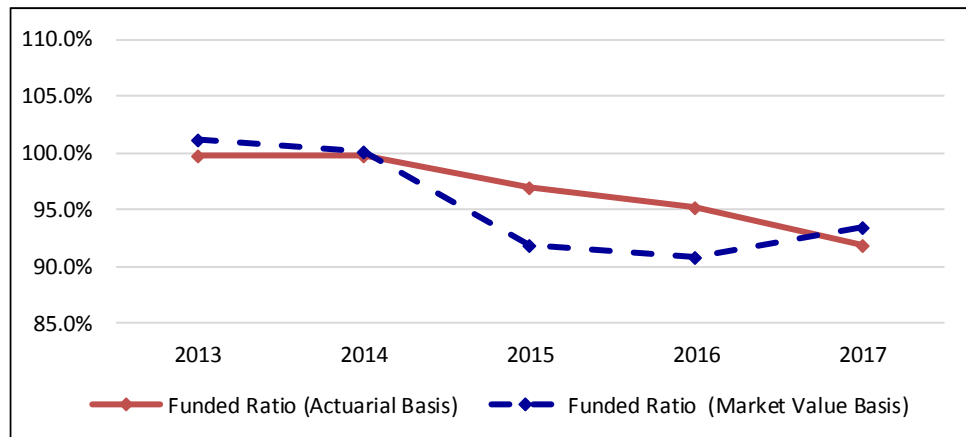


## Section 2: The Valuation Process

### Valuation Results: Funded Ratio (continued)

#### Graph 10: Funded Ratios

The graph below provides a history of the funded ratio on a market and actuarial basis over the past five years.



**Commentary:** The actuarial value of assets basis is used for computing contributions to alleviate contribution volatility. The funded ratio on an actuarial basis decreased from 95.2% at December 31, 2016 to 92.0% at December 31, 2017. Funded ratios for valuations prior to December 31, 2015 are based on accrued liabilities calculated under the frozen entry age cost method. Under this cost method, the AAL will track closely to assets.



## Section 2: The Valuation Process

### Valuation Results: Employer Contributions

The North Carolina General Statutes provide that the contributions of employers shall consist of a normal contribution and an accrued liability contribution. An additional initial accrued liability contribution rate is to be set for each employer on the basis of the prior service credits allowable to the employees thereof, and is determined on the basis of separate initial valuations for each employer.

The December 31, 2016 valuation resulted in a preliminary actuarially determined employer contribution rate of 7.40% of payroll for general employees and firefighters and 8.99% of payroll for law enforcement officers at July 1, 2018. Subsequently, the Board of Trustees set contributions at 7.75% of payroll for general employees and firefighters and 8.50% of payroll for law enforcement officers at July 1, 2018 in order to account for the Employer Contribution Rate Stabilization Policy (ECRSP) adopted by the Board of Trustees on January 21, 2016. As a result of the December 31, 2017 valuation, the preliminary actuarial determined employer contribution rate is 8.56% of payroll for general employees and firefighters and 10.22% of payroll for law enforcement officers. Based on the ECRSP, the preliminary ECRSP contribution rate should be set at 8.00% of payroll for general employees and firefighters and 8.75% of payroll for law enforcement officers at July 1, 2019.

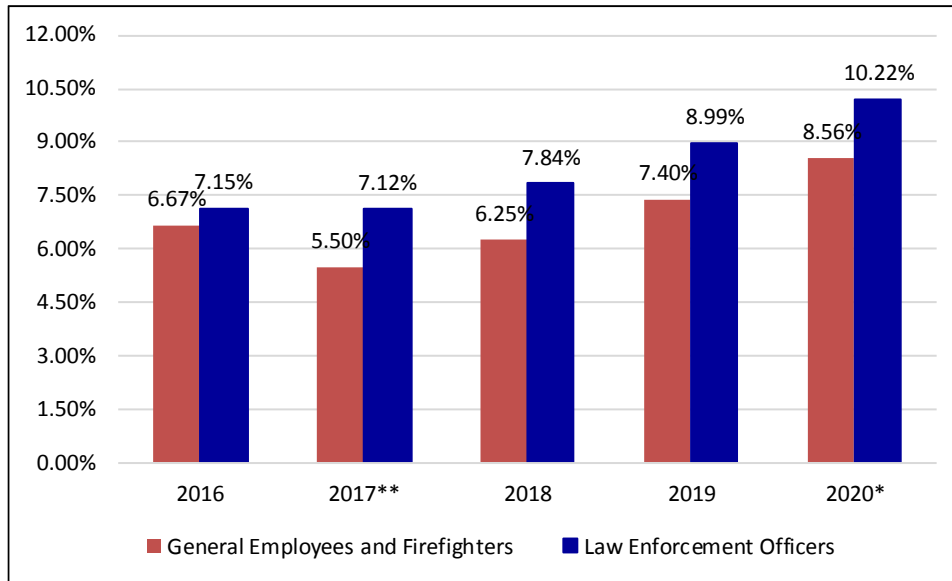


## Section 2: The Valuation Process

### Valuation Results: Employer Contributions (continued)

#### Graph 11: Employer Actuarially Determined Contribution Rates

The graph below provides a history of actuarially determined employer contribution rates over the past five years.



\* Subject to the impact of future legislative changes effective during that fiscal year

\*\* Includes impact of the experience study

**Commentary:** Starting with the contribution for fiscal year ending 2017, the actuarially determined employer contribution rates are split into the normal cost rate and the accrued liability rate. The normal cost rate is the employer's portion of the cost of benefits accruing after reducing for the 6% of pay contribution the members make. The accrued liability rate is the payment toward the unfunded liability needed to pay off the pension debt over 12 years. The 12-year period is a short period for Public Sector Retirement Systems in the United States, with most Systems using a longer period to pay off the pension debt. The shorter period results in higher contributions and more benefit security.

For contributions prior to fiscal year ending 2017, the actuarially determined employer contribution rates consisted of only a normal cost rate. All liability and asset gains (losses) served to directly decrease (increase) this rate.

These contribution rates do not include an employer's additional initial contribution for unfunded prior service cost accrued liability.

A detailed summary of the actuarially determined employer contribution rates is provided in Section 6 of this report.



## Section 2: The Valuation Process

### Valuation Results: Projections

Projections of contribution requirements and funded status into the future can be helpful planning tools for stakeholders. This section provides such projections. The projections of the actuarial valuation are known as deterministic projections. Deterministic projections are based on one scenario in the future. The baseline deterministic projection is based on December 31, 2017 valuation results as assumptions.

#### Key Projection Assumptions:

- Valuation interest rate of 7.00% for all years, with direct rate smoothing of the employer contribution rates over a three-year period.
- 7.00% investment return on market value of assets
- Actuarial assumptions and methods as described in Appendix D. All future demographic experience is assumed to be exactly realized.
- The contribution rate under the Employer Contribution Rate Stabilization Policy (ECRSP) is contributed until fiscal year ending 2022.
- The actuarially determined contribution rate is contributed for fiscal years ending 2023 and beyond.
- 0% increase in the total active member population
- No cost-of-living adjustments granted
- Future pay increases based on long-term valuation

The ECRSP adopted by the Board of Trustees on January 21, 2016 requires that recommended contributions for general employees be set at 7.25% of payroll for fiscal year ending 2017 and will increase each fiscal year by 0.25% per year, with the following additional adjustments, if applicable:

- 1) If the underlying actuarially determined employer contribution rate (ADEC) for a given fiscal year is 50% higher than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal years increases 0.50%;
- 2) If the underlying ADEC for a given fiscal year is 50% lower than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal year decreases 0.50%;
- 3) If the General Assembly grants any additional COLA beyond the amount of COLA granted by the Board, increases the multiplier for active employees, or changes the benefit structure in a way that has a cost to the system, the schedule of contributions for the current and future fiscal years will be increased by the cost of the benefit enhancement. The cost of any COLA granted by the Board under the authority allowed by statute will not impact the scheduled contribution rates.

Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees.



## Section 2: The Valuation Process

### Valuation Results: Projections (continued)

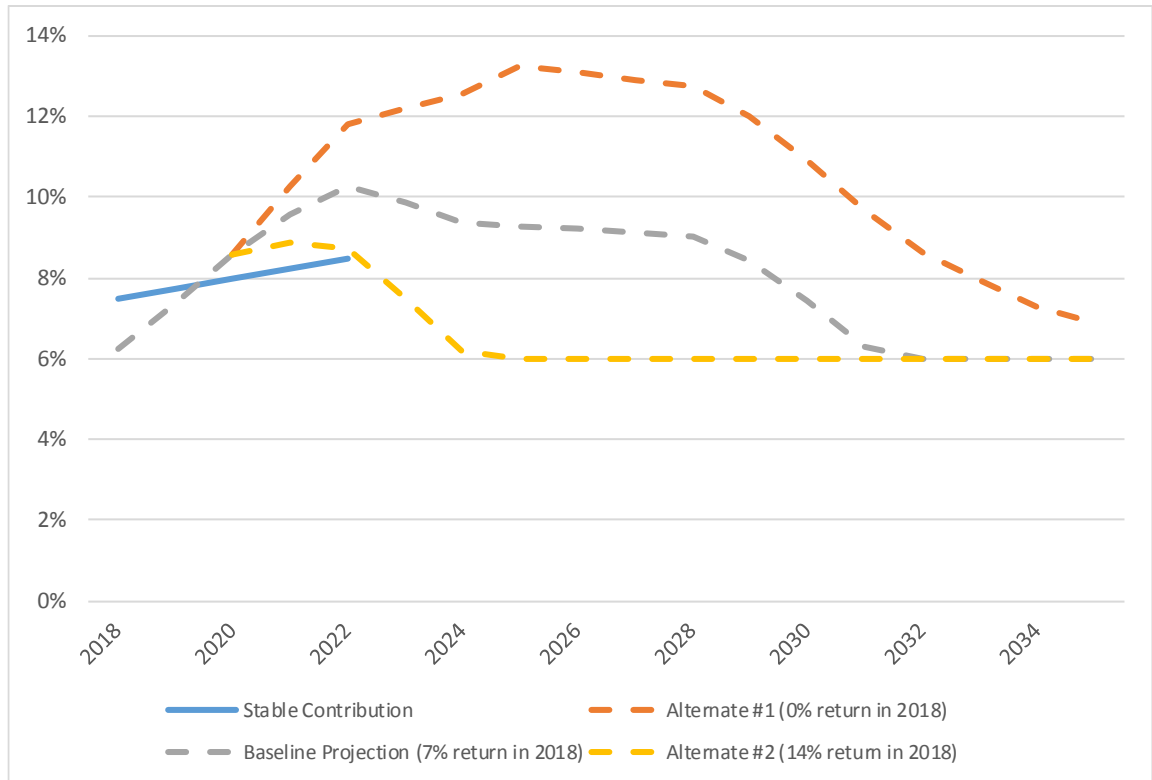
In addition, we have provided two alternate deterministic projections. The first alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 0.0% asset return for calendar year 2018. The second alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 14.0% asset return for calendar year 2018.

Finally, stochastic projections, where hundreds of projections based on varying rates of return are performed and results are ordered, are periodically performed by the Investment Management Division and shared with the Board of Trustees and RSD staff.

### Valuation Results: Projections (continued)

#### Graph 12: Projected Actuarially Determined Employer Contribution Rates

The graph below provides the actuarially determined employer contributions rates for general employees and firefighters projected for 15 years, as well as the board-approved stable contribution under the Employer Contribution Rate Stabilization Policy.



**Commentary:** The actuarially determined employer contribution rate trends to around 5%, which is the level of the cost of benefits accrued, or the long term employer cost of LGERS when there is no pension debt. The contribution rates shown in the graph above do not include an employer's additional initial contribution for unfunded prior service cost accrued liability. However, the minimum employer contribution rate is equal to the employee contribution rate of 6.00%.

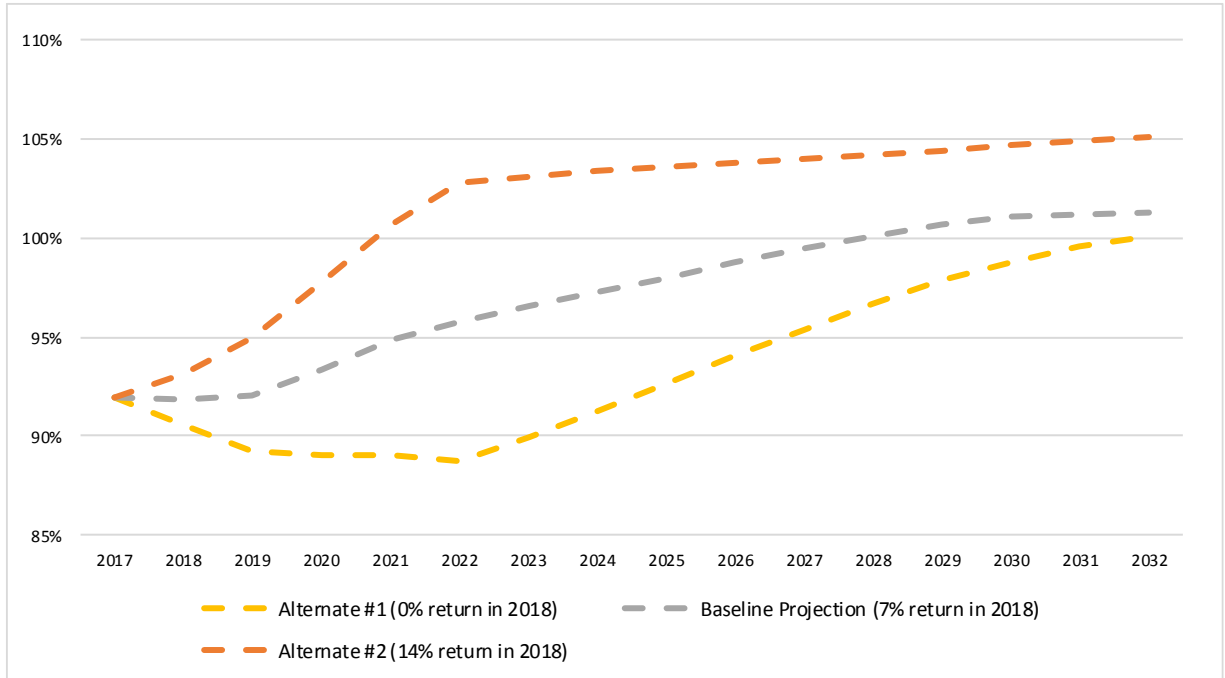


## Section 2: The Valuation Process

### Valuation Results: Projections (continued)

#### Graph 13: Projected Funded Ratio

The graph below provides the funded ratio projected for 15 years.



**Commentary:** Note that if the 7.00% return under the Baseline Projection is achieved, the funded ratio reaches the long term target of 100% within 15 years. This is a direct result of using a 12 year period to pay off the pension debt.

A detailed summary of the deterministic projections is provided in Section 9 of this report.

### Valuation Results: Accounting Information

The Governmental Account Standards Board (GASB) issues statements which establish financial reporting standards for defined benefit pension plans and accounting for pension expenditures and expenses for governmental employers.

The valuation has been prepared in accordance with the parameters of Statement No. 67 of the GASB and all applicable Actuarial Standards of Practice. The Net Pension Liability (Asset) under GASB 67 for the fiscal year ending June 30, 2018, is \$2,372,342,000 (compared to \$1,527,723,000 for fiscal year ending June 30, 2017). The required financial reporting information for LGERS under GASB No. 67 can be found in Section 8 of this report.



## Section 3: Membership Data

The Retirement Systems Division provided membership data as of the valuation date for each member of LGERS. The membership data assists the actuary in estimating benefits that could be paid in the future. The tables below provide a summary of the membership data used in this valuation. Detailed tabulations of data are provided in Appendix B.

**Table 2: Active Member Data**

	Member Count	Average Age	Average Service	Reported Compensation
General Employees	95,391	45.76	9.77	4,260,296,906
Firefighters	12,330	38.01	10.07	598,477,450
Law Enforcement Officers	<u>21,058</u>	<u>39.25</u>	<u>11.33</u>	<u>1,085,732,683</u>
Total	128,779	43.95	10.06	5,944,507,039

The table above includes members not in receipt of benefits who had reported compensation in 2017.

**Table 3: Terminated Vested Member Data**

	Member Count	Average Age	Average Service	Accumulated Contributions
General Employees	57,461	45.36	3.74	676,524,223
Firefighters	3,431	37.60	4.24	44,423,360
Law Enforcement Officers	<u>7,351</u>	<u>40.54</u>	<u>5.25</u>	<u>123,680,270</u>
Total	68,243	44.45	3.93	844,627,853

The table above includes members not in receipt of benefits who did not have reported compensation in 2017.



## Section 3: Membership Data

**Table 4: Data for Members Currently Receiving Benefits**

Member Count	Member Count	Average Age	Annual Retirement Allowances
<u>Retired Members (Healthy at Retirement)</u>			
General Employees	42,721	70.33	785,031,664
Firefighters	2,333	65.56	73,042,832
Law Enforcement Officers	<u>7,940</u>	<u>65.10</u>	<u>216,090,708</u>
Total	52,994	69.33	1,074,165,203
<u>Retired Members (Disabled at Retirement)*</u>			
General Employees	6,463	63.13	106,451,941
Firefighters	1,146	61.76	31,254,155
Law Enforcement Officers	<u>1,507</u>	<u>56.84</u>	<u>31,484,121</u>
Total	9,116	61.92	169,190,217
<u>Survivors of Deceased Members</u>			
General Employees	4,920	71.78	54,513,156
Firefighters	488	74.97	7,752,010
Law Enforcement Officers	<u>1,248</u>	<u>70.44</u>	<u>18,636,428</u>
Total	6,656	71.77	80,901,594
Grand Total	68,766	68.58	1,324,257,015

\* Includes retired members reported as disabled in a prior valuation and not subsequently reported as returned to work.





## Section 4: Asset Data

Assets are held in trust and are invested for the exclusive benefit of LGERS members. The tables below provide the details of the Market Value of Assets for the current and prior years' valuations.

**Table 5: Market Value of Assets**

Asset Data as of	12/31/2017	12/31/2016
Beginning of Year Market Value of Assets	23,308,817,567	22,403,836,820
Contributions	866,115,992	816,918,631
Benefit Payments	(1,363,305,171)	(1,291,506,719)
Investment Income	<u>3,106,732,653</u>	<u>1,379,568,835</u>
Net Increase/(Decrease)	2,609,543,474	904,980,747
End of Year Value of Assets	25,918,361,041	23,308,817,567
Estimated Net Investment Return	13.47%	6.22%

**Table 6: Allocation of Investments by Category of the Market Value of Assets**

Asset Data as of	12/31/2017	12/31/2016
Allocation by Dollar Amount		
Public Equity	10,267,888,887	10,024,500,370
Fixed Income (LTIF)	6,790,748,174	6,234,361,635
Cash and Receivables	864,889,581	339,568,026
Other*	<u>7,995,081,746</u>	<u>6,710,387,536</u>
Total Market Value of Assets	25,918,608,388	23,308,817,567
Allocation by Percentage of Asset Value		
Public Equity	39.6%	43.0%
Fixed Income (LTIF)	26.2%	26.7%
Cash and Receivables	3.3%	1.5%
Other*	<u>30.9%</u>	<u>28.8%</u>
Total Market Value of Assets	100.0%	100.0%

\* Real Estate, Alternatives, Inflation and Credit



## Section 4: Asset Data

In order to reduce the volatility that investment gains and losses can have on the required contributions and funded status of LGERS, the Board adopted an asset valuation method to determine the Actuarial Value of Assets used for funding purposes. The table below provides the calculation of the Actuarial Value of Assets at the valuation date.

**Table 7: Actuarial Value of Assets**

Asset Data as of	12/31/2017
Beginning of Year Market Value of Assets	23,308,817,567
Contributions	866,115,991
Benefit Payments	<u>(1,363,305,171)</u>
Net Cash Flow	(497,189,180)
Expected Investment Return	1,660,647,131
Expected End of Year Market Value of Assets	24,472,275,518
End of Year Market Value of Assets	25,918,361,041
Excess of Market Value over Expected Market Value of Assets	1,446,085,523
80% of 2017 Asset Gain/(Loss)	1,156,868,418
60% of 2016 Asset Gain/(Loss)	(136,503,310)
40% of 2015 Asset Gain/(Loss)	(622,737,226)
20% of 2014 Asset Gain/(Loss)	<u>N/A</u>
Total Deferred Asset Gain/(Loss)	397,627,882
Preliminary End of Year Actuarial Value of Assets	25,520,733,159
Final End of Year Actuarial Value of Asset (not less than 80% and not greater than 120% of Market Value)	25,520,733,159
Estimated Net Investment Return on Actuarial Value	6.59%

**Commentary:** The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution. The asset valuation method recognizes asset returns in excess of or less than the expected return on the market value of assets over a five-year period. Lower than expected market returns in 2015 and 2016, which were partially offset by a greater than expected market return in 2017, resulted in an actuarial value of asset return for calendar year 2017 of 6.59% and a recognized actuarial asset loss of \$148 million during 2017.



## Section 4: Asset Data

The valuation assumes that the funds will earn a 7.00% asset return. The table below provides a history of the Actuarial Value and Market Value of Asset returns.

**Table 8: Historical Asset Returns**

Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
1998	9.93%	16.64%
1999	15.61%	9.99%
2000	12.27%	2.65%
2001	8.98%	-1.69%
2002	6.13%	-4.44%
2003	8.52%	18.63%
2004	9.00%	10.77%
2005	8.58%	7.00%
2006	9.19%	11.41%
2007	9.03%	8.36%
2008	2.97%	-19.47%
2009	4.92%	14.94%
2010	6.10%	11.53%
2011	5.33%	2.14%
2012	6.51%	11.79%
2013	7.61%	12.21%
2014	7.32%	6.19%
2015	5.87%	0.34%
2016	5.34%	6.22%
2017	6.59%	13.47%
Average	7.76%	6.57%
Range	12.64%	38.10%

**Commentary:** The average investment return recognized for purposes of determining the annual change in contribution each year is the actuarial value of assets return. Currently, the average actuarial return of 7.76% is a little more than 1% greater than the average market return of 6.57%. But the range of returns is markedly greater – 12.64% versus 38.10%. This results in much lower employer contribution volatility using the actuarial value of assets versus market, while ensuring that the actuarial needs of LGERS are met.



## Section 5: Liability Results

Using the provided membership data, benefit provisions, and actuarial assumptions, the Retirement System's future benefit payments are estimated. These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits. The Present Value of Future Benefits is allocated to past, current and future service, respectively known as the actuarial accrued liability, normal cost and present value of future normal costs. The table below provides these liability numbers for the current and prior years' valuations.

**Table 9: Liability Summary**

Valuation Results as of	12/31/2017	12/31/2016
(a) Present Value of Future Benefits		
(1) Active Members	\$ 18,462,356,232	\$ 16,750,605,398
(2) Terminated Members	1,689,255,707	1,580,234,469
(3) Members Currently Receiving Benefits	<u>13,558,140,471</u>	<u>12,575,121,366</u>
(4) Total	\$ 33,709,752,410	\$ 30,905,961,233
(b) Present Value of Future Normal Costs		
(1) Employee Future Normal Costs	\$ 3,025,954,052	\$ 2,875,855,000
(2) Employer Future Normal Costs	<u>2,937,930,728</u>	<u>2,376,500,245</u>
(3) Total	\$ 5,963,884,780	\$ 5,252,355,245
(c) Actuarial Accrued Liability: (a4) - (b3)	\$ 27,745,867,630	\$ 25,653,605,988
(d) Actuarial Value of Assets	\$ 25,520,733,159	\$ 24,424,927,820
(e) Unfunded Accrued Liability: (c) - (d)	\$ 2,225,134,471	\$ 1,228,678,168
(f) Unfunded Initial Service Liability*	\$ 25,764,186	\$ 29,688,150
(g) Unfunded Accrued Liability to be Amortized over 12 Years (e) - (f)	\$ 2,199,370,285	\$ 1,198,990,018

\*The unfunded initial prior service liability balance as of December 31, 2017 and the applicable employer contribution rate as of July 1, 2019 is provided in Appendix I, for participating employers with remaining initial prior service liability as of December 31, 2017. Appendix I also provides a non-binding estimated date of liquidation of the liability based on this valuation.

**Commentary:** The actuarial cost method was changed to the entry age normal cost method from a frozen entry age cost method as of the December 31, 2015 valuation. Separate initial unfunded prior service accrued liabilities are still maintained for employers who joined the system prior to November 1, 2015.



## Section 5: Liability Results

The "Estimated Date of Liquidation of Initial Prior Service Liability", shown in Appendix I, must be recalculated annually and adjusted according to each unit's actual experience. The estimated date for liquidation of the liability as of the valuation date does not constitute a guarantee that a local unit will complete the liquidation as of the estimated date, for the reason that actual experience may not match the projections used to create the estimate.

The table below provides a summary of the participating employers in the current and prior years' valuations.

**Table 10: Participating Employers**

Valuation Date	12/31/2017	12/31/2016
Total Participating Employers	896	888
Total Participating Employers with an Unfunded Accrued Liability Balance at Valuation Date	70	86
Employers Granted Relief for Fiscal Year Beginning 6 Months after Valuation Date	11	3
Employers with Expected Relief for Fiscal Year Beginning 18 Months after Valuation Date	1	8



## Section 6: Actuarially Determined Employer Contribution

The actuarially determined employer contribution consists of a normal cost rate and an accrued liability rate. The normal cost rate is the employer's portion of the cost of benefits accruing during the year after reducing for the member contribution. The accrued liability rate is the payment toward the unfunded accrued liability in order to pay off the unfunded accrued liability over 12 years. For fiscal years beginning subsequent to January 1, 2017, the sum of the normal cost rate and the accrued liability rate shall not be less than the employee contribution.

The Employer Contribution Rate Stabilization Policy (ECRSP) adopted by the Board of Trustees on January 21, 2016 requires that recommended contributions for general employees be set at 7.25% of payroll for fiscal year ending 2017 and will increase each fiscal year by 0.25% per year, with the following additional adjustments, if applicable:

- (1) If the underlying actuarially determined employer contribution rate (ADEC) for a given fiscal year is 50% higher than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal years increases 0.50%;
- (2) If the underlying ADEC for a given fiscal year is 50% lower than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal year decreases 0.50%;
- (3) If the General Assembly grants any additional COLA beyond the amount of COLA granted by the Board, increases the multiplier for active employees, or changes the benefit structure in a way that has a cost to the system, the schedule of contributions for the current and future fiscal years will be increased by the cost of the benefit enhancement. The cost of any COLA granted by the Board under the authority allowed by statute will not impact the scheduled contribution rates.

Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees. The ECRSP would result in a recommended contribution rate of 8.00% of payroll for general employees and firefighters and 8.75% of payroll for law enforcement officers for fiscal year ending 2020.

For fiscal year ending 2020, the ECRSP rates are 8.00% for general employees and firefighters and 8.75% for law enforcement officers. For this year, under the ECRSP policy, the maximum ADEC before the Board would be required to increase the ECRSP rate for general employees and firefighters would be 12.00%. Even though this year would be the first year since adoption of the ECRSP policy that the ADECs for both rate classes are higher than the rate that have been set under the policy, the ADECs do not exceed the ECRSP maximum that would trigger change in the ECRSP rates.



## Section 6: Actuarially Determined Employer Contribution

The table below provides the calculation of the actuarially determined employer contribution for the current valuation. The contribution rates shown in the table below do not include an employer's additional initial contribution for unfunded prior service liability.

**Table 11: Calculation of the Actuarially Determined Employer Contribution**

Valuation Date	12/31/2017
ADEC for Fiscal Year Ending	6/30/2020
Normal Cost Rate Calculation	
(a) Normal Cost Rate	
General Employees and Firefighters	11.19%
Law Enforcement Officers	13.14%
(b) Employee Contribution Rate	6.00%
(c) Expenses	
General Employees and Firefighters	0.20%
Law Enforcement Officers	0.00%
(d) Total Employer Normal Cost Rate (a) - (b) + (c)	
General Employees and Firefighters	5.39%
Law Enforcement Officers	7.14%
Accrued Liability Rate Calculation	
(e) Total Annual Amortization Payments*	\$ 284,824,413
(f) Valuation Compensation**	\$ 6,670,047,884
(g) Accrued Liability Rate (e) / (f)	4.27%
Preliminary ADEC (d) + (g)	
General Employees and Firefighters	9.66%
Law Enforcement Officers	11.41%
ADEC with Direct Rate Smoothing	
General Employees and Firefighters	8.56%
Law Enforcement Officers	10.22%

\*See Table 14 for more detail

\*\* Beginning with the December 31, 2017 valuation, compensation is projected to the fiscal year over which contributions will occur



## Section 6: Actuarially Determined Employer Contribution

A detailed table of contribution rates payable by participating employers is provided in Appendix H. In addition to the actuarially determined employer contribution, as determined by the December 31, 2017 valuation (see Table 11 for more details), the unfunded initial prior service liability contribution rate is reflected for those employers that have not liquidated this liability as of June 30, 2019 (see Appendix I for more details).

The table below provides a reconciliation of the current and prior years' actuarially determined employer contributions.

**Table 12: Reconciliation of the Change in the Actuarially Determined Employer Contribution Rates**

	General Employees and Firefighters	Law Enforcement Officers
Fiscal year ending June 30, 2019 Preliminary ADEC based on December 31, 2016 valuation	7.40%	8.99%
Impact of Legislative Changes	0.00%	0.00%
Fiscal year ending June 30, 2019 ADEC for Reconciliation	7.40%	8.99%
Change Due to Transition to New Actuary (Gain)/Loss	0.46%	0.52%
Changes Due to Anticipated Reduction in UAAL*	-0.08%	-0.08%
Change Due to Demographic (Gain)/Loss	0.18%	0.16%
Change Due to Investment (Gain)/Loss	0.30%	0.30%
Change Due to Contributions Greater than ADEC**	-0.26%	-0.26%
Impact of Assumption Changes	1.65%	1.78%
Impact of Direct Rate Smoothing	-1.10%	-1.19%
Fiscal year ending June 30, 2020 Preliminary ADEC based on December 31, 2017 valuation	8.56%	10.22%

\*Amortization of the UAAL is determined as a level dollar amount with payments expected to remain the same over the amortization period but was calculated as a percentage of valuation payroll in the previous valuation. Payroll is expected to increase annually while the expected amortization payment does not increase. This causes the expected amortization payment to be a lesser percentage of the expected payroll.

\*\*Includes ECRSP rate in excess of ADEC.





## Section 6: Actuarially Determined Employer Contribution

Amortization methods determine the payment schedule for the unfunded actuarial accrued liability. LGERS adopted a 12-year closed amortization period for fiscal year ending 2019. A new amortization base is created each year based on the prior years' experience. The tables below provide the calculation of the new amortization base and the amortization schedule for the current year's valuation.

**Table 13: Calculation of the New Amortization Base**

Calculation as of	12/31/2017
(a) Unfunded Actuarial Accrued Liability*	\$ 2,199,370,285
(b) Prior Years' Outstanding Bases	\$ 1,238,286,382
(c) New Amortization Base: (a) - (b)	\$ 961,083,903
(d) New Amortization Payment	\$ 129,470,924

\* Does not include the unfunded initial prior service liability

**Table 14: Amortization Schedule for Unfunded Accrued Liability**

Date Established	Original Balance	12/31/2017	Annual Payment
		Outstanding Balance	
December 31, 2015	\$ 677,367,798	\$ 731,752,387	\$ 91,580,648
December 31, 2016	\$ 472,513,055	\$ 506,533,995	\$ 63,772,841
December 31, 2017	\$ 961,083,903	\$ 961,083,903	\$ 129,470,924
Total		\$ 2,199,370,285	\$ 284,824,413



## Section 6: Actuarially Determined Employer Contribution

The tables below provide a history of the actuarially determined employer contribution rates.

**Table 15: Actuarially Determined Employer Contribution Rates for General Employees and Firefighters**

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	8.56%	N/A	N/A	N/A
12/31/2016	7/1/2018	7.40%	0.00%	7.40%	7.75%
12/31/2015	7/1/2017	6.25%	0.00%	6.25%	7.50%
12/31/2014	7/1/2016	6.39%	-0.89%	5.50%	7.25%
12/31/2013	7/1/2015	6.52%	0.15%	6.67%	6.67%
12/31/2012	7/1/2014	6.94%	0.01%	6.95%	7.07%

\*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.92% decrease in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016.

**Table 16: Actuarially Determined Employer Contribution Rates for Law Enforcement Officers**

Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2017	7/1/2019	10.22%	N/A	N/A	N/A
12/31/2016	7/1/2018	8.99%	0.00%	8.99%	8.50%
12/31/2015	7/1/2017	7.84%	0.00%	7.84%	8.25%
12/31/2014	7/1/2016	6.87%	0.25%	7.12%	8.00%
12/31/2013	7/1/2015	7.00%	0.15%	7.15%	7.15%
12/31/2012	7/1/2014	7.42%	0.01%	7.43%	7.55%

\*The change due to legislation for the contribution in effect at 7/1/2016 includes a 0.22% increase in the ADEC due to the experience study and a 0.03% increase in the ADEC due to the cost-of-living adjustment at 7/1/2016.



## Section 6: Actuarially Determined Employer Contribution

The following table shows estimates of the potential cost of two types of benefit improvements if they were enacted based on the results of the December 31, 2017 or December 31, 2016 valuations. The first benefit improvement is a permanent one-time cost-of-living increase and the second is an increase in the defined benefit formula multiplier.

**Table 17: Cost of Benefits Enhancements**

Calculation as of	12/31/2017	12/31/2016
Increase in UAAL for a 1% COLA	\$ 152,887,000	N/A
Increase in ADEC for a 1% COLA	0.31%	0.31%
Increase in UAAL for a 0.1% Increase in the Defined Benefit Formula	\$ 149,378,000	N/A
Increase in ADEC for a 0.1% Increase in the Defined Benefit Formula	0.36%	0.37%

The 1% COLA calculated at the December 31, 2017 valuation would be effective July 1, 2019, and would result in an increase in AAL of \$152.9 million. The COLA would be paid in full to retired members and survivors of deceased members on the retirement roll on July 1, 2018 and would be prorated for retired members and survivors of deceased members who commence benefits after July 1, 2018 but before June 30, 2019.

A corresponding increase in retirement allowances would be paid in the event of an increase in the defined benefit formula. An increase of 0.01% in the Defined Benefit Formula would result in an increase in AAL of \$149.4 million.

N.C.G.S. 128-27(k) COLA Disclosure for Board of Trustees:

- (1) The maximum COLA that could be granted under N.C.G.S. 128-27(k) by the Board payable in Fiscal Year 2019 is 0.00%
- (2) Amount of actuarial accrued liability that would be added if that COLA is granted: N/A
- (3) Amount that COLA would increase the underlying ADEC: N/A
- (4) ECRSP rate for General/Firefighters minus the increased ADEC for this COLA: N/A
- (5) ECRSP rate for Law Enforcement Officers minus the increased ADEC for this COLA: N/A



## Section 7: Valuation Balance Sheet

The valuation balance sheet shows the assets and liabilities of LGERS. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The table below provides the valuation balance sheet for the current year and prior year.

**Table 18: Valuation Balance Sheet**

Balance Sheet as of	12/31/2017	12/31/2016
<b>Assets</b>		
Current Actuarial Value of Assets		
Annuity Savings Fund	\$ 5,161,971,164	\$ 4,970,151,343
Pension Accumulation Fund	<u>20,358,761,995</u>	<u>19,454,776,477</u>
Total	\$ 25,520,733,159	\$ 24,424,927,820
Future Member Contributions to the Annuity Savings Fund	\$ 3,025,954,052	\$ 2,875,855,000
Prospective Contributions to the Pension Accumulation Fund		
Normal Contributions	\$ 2,937,930,728	\$ 2,376,500,245
Unfunded Accrued Liability Contributions	2,225,134,471	1,228,678,168
Undistributed Gain Contributions	<u>(495,701,873)</u>	<u>(25,767,865)</u>
Total	\$ 4,667,363,326	\$ 3,579,410,548
Total Assets	\$ 33,214,050,537	\$ 30,880,193,368
<b>Liabilities</b>		
Annuity Savings Fund		
Past Member Contributions	\$ 5,161,971,164	\$ 4,970,151,343
Future Member Contributions	<u>3,025,954,052</u>	<u>2,875,855,000</u>
Total Contributions	\$ 8,187,925,216	\$ 7,846,006,343
Pension Accumulation Fund		
Benefits Currently in Payment	\$ 13,558,140,471	\$ 12,575,121,366
Benefits to be Paid to		
Current Active Members	\$ 11,963,686,723	10,484,833,524
Reserve for Increases in Retirement Allowances effective July 1, 2018 (July 1, 2017 for December 31, 2016)	0	0
Reserve for Undistributed Gains/(Losses)	(495,701,873)	(25,767,865)
Total Benefits Payable	\$ 25,026,125,321	\$ 23,034,187,025
Total Liabilities	\$ 33,214,050,537	\$ 30,880,193,368

Note: Reserve for Undistributed Gains/(Losses) represents the excess (shortfall) of the present value of future contributions for the current funding in effect based on the prior valuation to the present value of future contributions for the ADEC based on the current valuation. An undistributed gain in this balance sheet should not be construed as eligibility for payment of a COLA.



## Section 8: Accounting Results

This section contains the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67 for fiscal year ending June 30, 2018 based on a valuation date of December 31, 2017.

Please note that GASB Statement No. 67 (*Financial Reporting for Pension Plans*) is applicable for fiscal years ending 2014 and later.

The June 30, 2018 total pension liability presented in this section was determined by an actuarial valuation as of December 31, 2017, based on the assumptions, methods and plan provisions described in this report. The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost method, as required by GASB Statement No. 67.

GASB Statement No. 67 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide a distribution of the number of employees by type of membership.

**Table 19: Number of Active and Retired Members  
as of December 31, 2017**

Group	Number
Retired members and survivors of deceased members currently receiving benefits	68,766
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	68,243
Active Members	<u>128,779</u>
Total	265,788



## Section 8: Accounting Results

GASB Statement No. 67 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide the schedule of changes in Net Pension Liability (Asset).

**Table 20: Schedule of Changes in Net Pension Liability (Asset)**

Calculation as of	June 30, 2018
<b>Total Pension Liability</b>	
Service Cost	\$ 713,227,000
Interest	1,838,989,000
Changes of Benefit Terms	0
Difference between Expected and Actual Experience	378,665,000
Change of Assumptions	595,781,000
Benefit Payments, including Refund of Member Contributions	<u>(1,402,793,000)</u>
Net Change in Total Pension Liability	2,123,869,000
Total Pension Liability - Beginning of Year	\$ 26,230,733,000
Total Pension Liability - End of Year	\$ 28,354,602,000
<b>Plan Fiduciary Net Position</b>	
Employer Contributions	\$ 492,317,000
Member Contributions	401,632,000
Net Investment Income	1,789,337,000
Benefit Payments, including Refund of Member Contributions	<u>(1,402,793,000)</u>
Administrative Expenses	<u>(4,324,000)</u>
Other	<u>3,081,000</u>
Net Change in Plan Fiduciary Net Position	1,279,250,000
Plan Fiduciary Net Position - Beginning of Year	\$ 24,703,010,000
Plan Fiduciary Net Position - End of Year	\$ 25,982,260,000

**Table 21: Net Pension Liability (Asset)**

Calculation as of	June 30, 2018	June 30, 2017
Total Pension Liability	\$ 28,354,602,000	\$ 26,230,733,000
Plan Fiduciary Net Position	<u>25,982,260,000</u>	<u>24,703,010,000</u>
Net Pension Liability (Asset)	\$ 2,372,342,000	\$ 1,527,723,000
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (Asset)	91.63%	94.18%



## Section 8: Accounting Results

The table below is the sensitivity of the net pension liability to changes in the discount rate.

**Table 22: Sensitivity of the Net Pension Liability (Asset)  
at June 30, 2018 to Changes in the Discount Rate**

Sensitivity of the Net Pension Liability to Changes in the Discount Rate			
	1% Decrease	Current	1% Increase
Discount Rate	6.00%	7.00%	8.00%
Net Pension Liability (Asset)	\$ 5,698,571,000	\$ 2,372,342,000	\$ (407,107,000)

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that for fiscal year ending 2019 to fiscal year ending 2022, System contributions will follow the Employer Contribution Rate Stabilization Policy as adopted by the Board of Trustees on January 21, 2016, and for fiscal years ending 2023 and beyond, System contributions will be based on the actuarially determined contribution rates. Based on those policies, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Please see Appendix E for additional detail.

The table below provides the methods and assumptions used to calculate the actuarially determined contribution rate.



## Section 8: Accounting Results

**Table 23: Additional Information for GASB Statement No. 67**

Valuation Date	12/31/2017
Actuarial cost method	Entry Age Normal
Amortization method	Level Dollar Closed
Amortization period	12 years
Asset valuation method	Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period (not greater than 120% of market value and not less than 80% of market value)
Actuarial assumptions:	
Investment rate of return*	7.00%
Projected salary increases**	3.50 – 8.10%
Projected salary increases**	
* Includes Inflation of	3.00%
** Includes Inflation and Productivity of	3.50%
Cost of living adjustments:	N/A





## Section 9: Projections

Projections of contribution requirements and funded status into the future can be helpful planning tools for stakeholders. This section provides such projections. The projections of the actuarial valuation are known as deterministic projections. Deterministic projections are based on one scenario in the future. The baseline deterministic projection is based on December 31, 2016 valuation results as assumptions.

### Key Projection Assumptions

- Valuation interest rate of 7.00% for all years
- 7.00% investment return on market value of assets
- Actuarial assumptions and methods as described in Appendix D. All future demographic experience is assumed to be exactly realized.
- The contribution rate under the Employer Contribution Rate Stabilization Policy (ECRSP) is contributed until fiscal year ending 2022.
- The actuarially determined contribution rate is contributed for fiscal years ending 2023 and beyond.
- 0% increase in the total active member population
- No cost-of-living adjustments granted
- Future pay increases based on long-term valuation

The ECRSP adopted by the Board of Trustees on January 21, 2016 requires that recommended contributions for general employees be set at 7.25% of payroll for fiscal year ending 2017 and will increase each fiscal year by 0.25% per year, with the following additional adjustments, if applicable:

- (1) If the underlying actuarially determined employer contribution rate (ADEC) for a given fiscal year is 50% higher than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal years increases 0.50%;
- (2) If the underlying ADEC for a given fiscal year is 50% lower than the scheduled employer contribution rate for that fiscal year, the scheduled employer contribution rate for the current and future fiscal year decreases 0.50%;
- (3) If the General Assembly grants any additional COLA beyond the amount of COLA granted by the Board, increases the multiplier for active employees, or changes the benefit structure in a way that has a cost to the system, the schedule of contributions for the current and future fiscal years will be increased by the cost of the benefit enhancement. The cost of any COLA granted by the Board under the authority allowed by statute will not impact the scheduled contribution rates.

Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees.

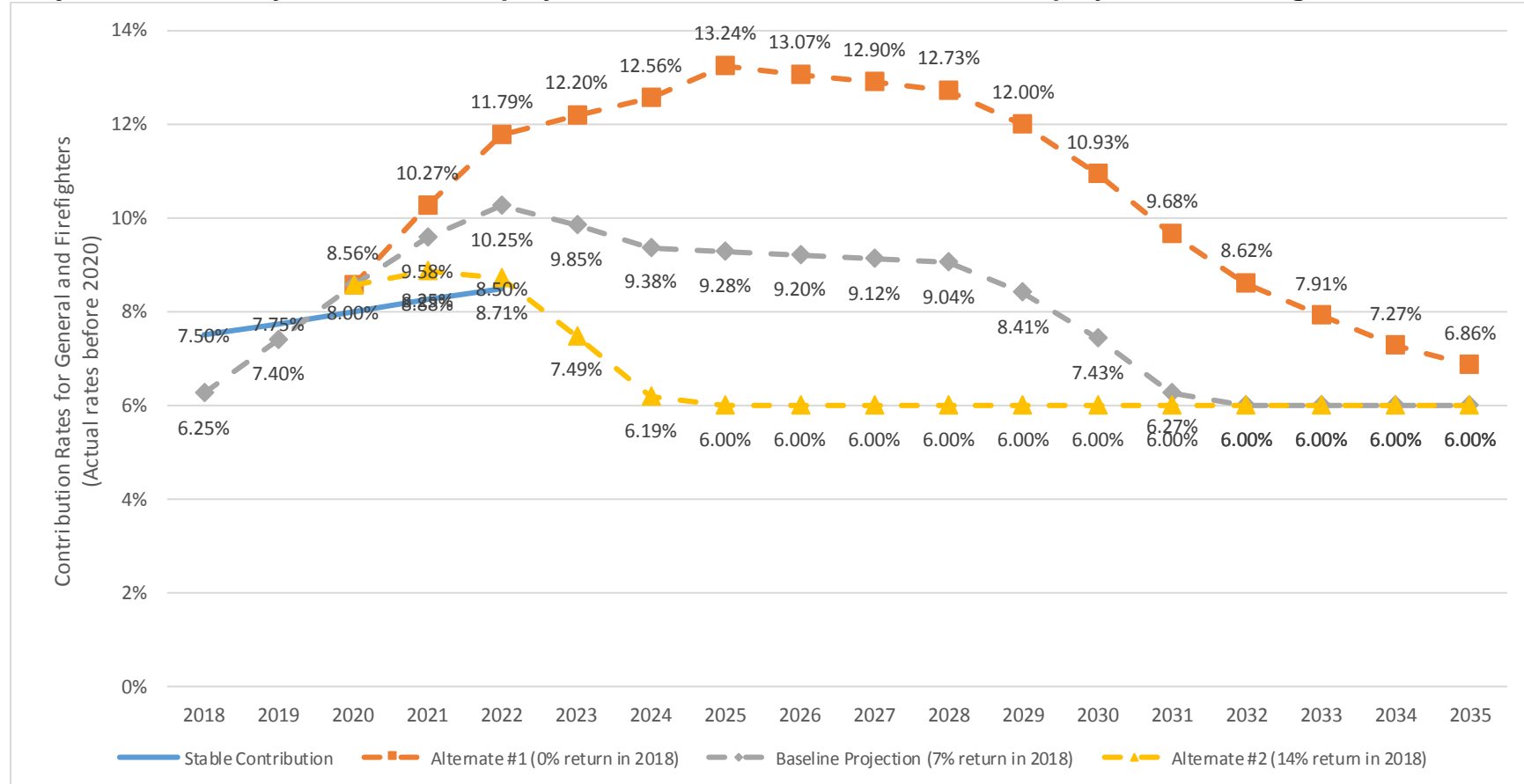
In addition, we have provided two alternate deterministic projections. The first alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 0.0% asset return for calendar year 2018. The second alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 14.0% asset return for calendar year 2017.



## Section 9: Projections

The graph below provides the actuarially determined employer contribution rates projected for 15 years, as well as the board approved stable contribution under the Employer Contribution Rate Stabilization Policy.

**Projected Actuarially Determined Employer Contribution Rates for General Employees and Firefighters**

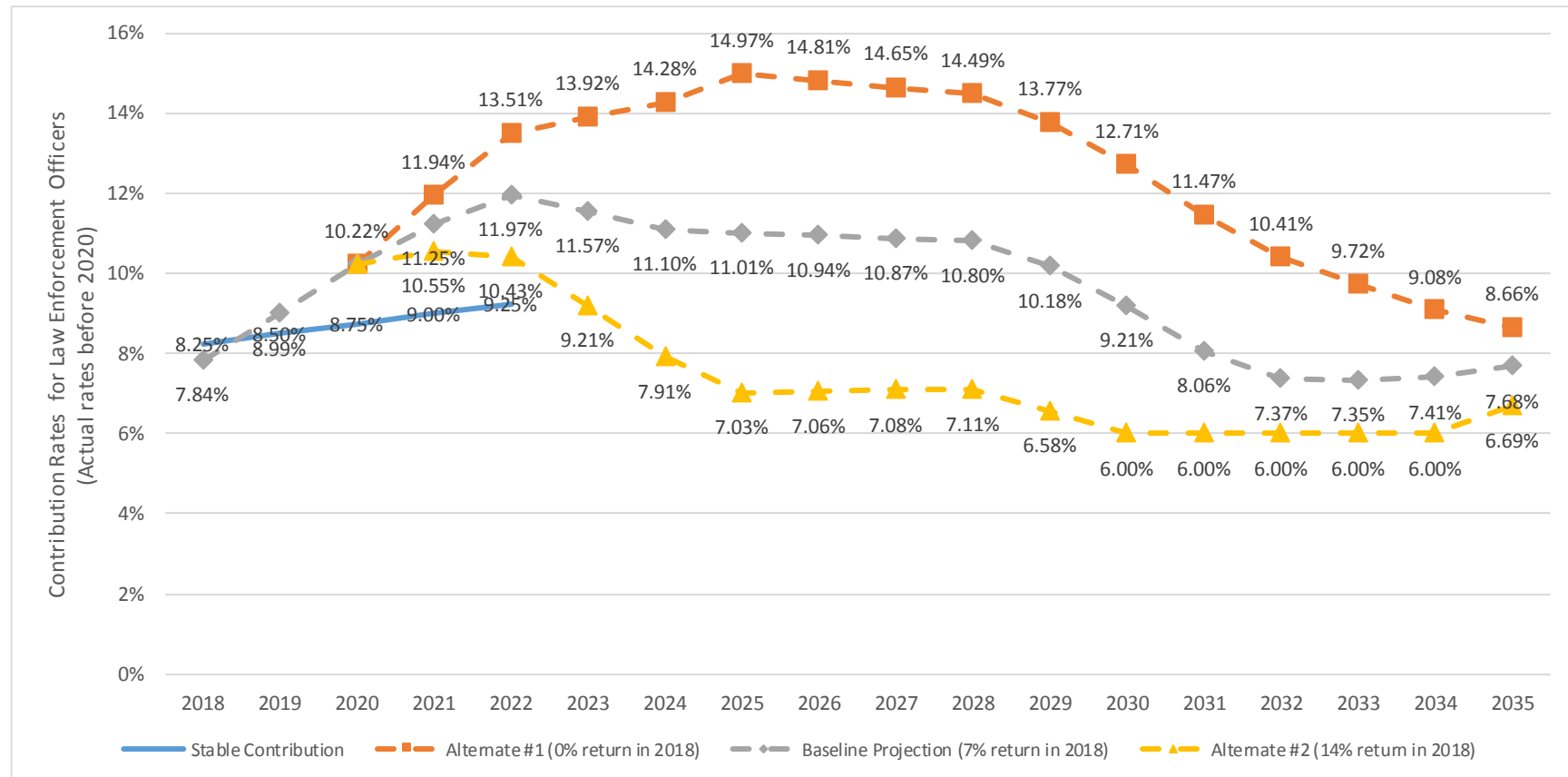




## Section 9: Projections

The graph below provides the actuarially determined employer contribution rates projected for 15 years, as well as the board approved stable contribution under the Employer Contribution Rate Stabilization Policy.

**Projected Actuarially Determined Employer Contribution Rates for Law Enforcement Officers**

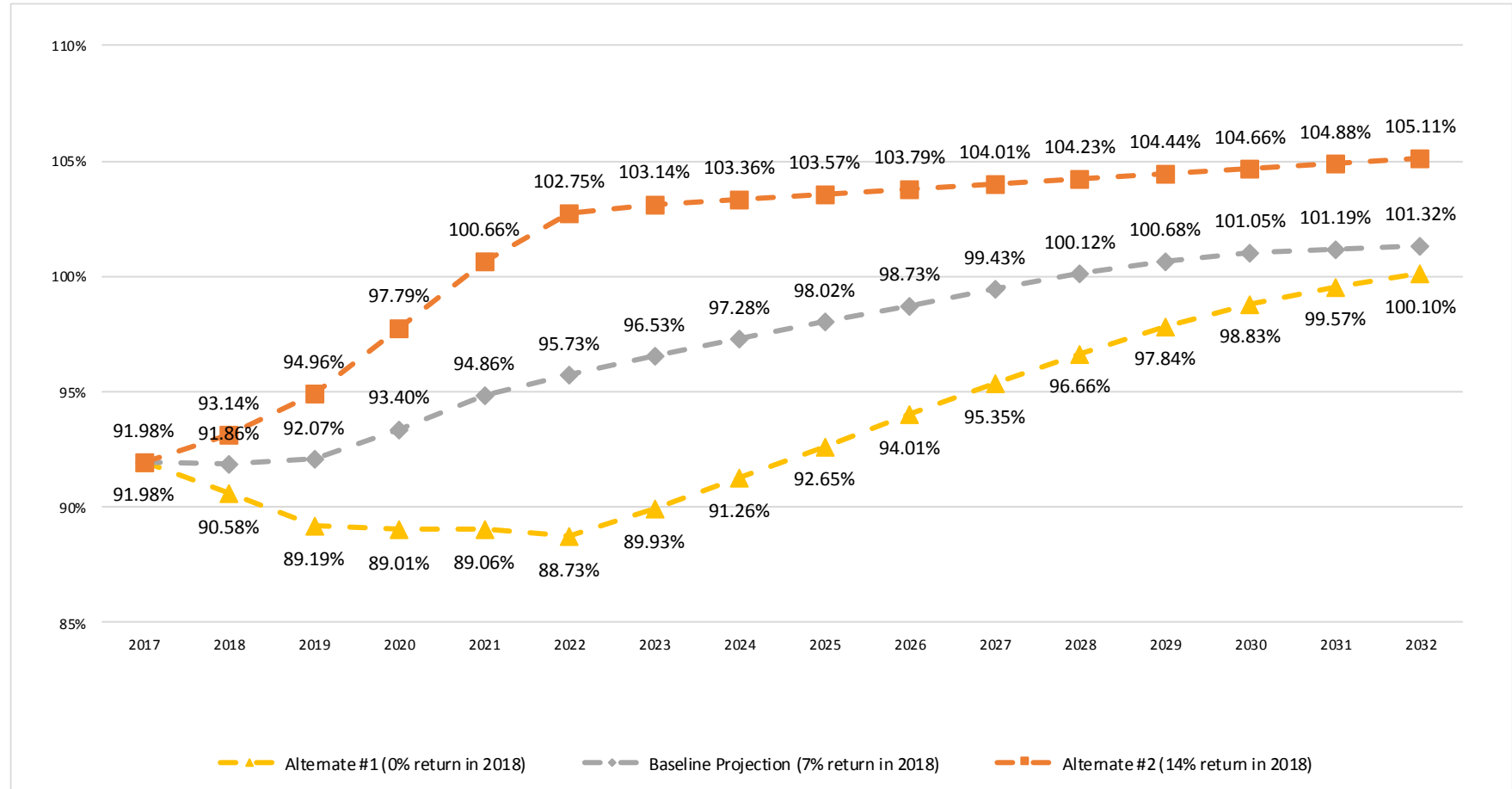




## Section 9: Projections

The graph below provides the funded ratio projected for 15 years.

**Projected Funded Ratio**





## Appendix A: Valuation Process and Glossary of Actuarial Terms

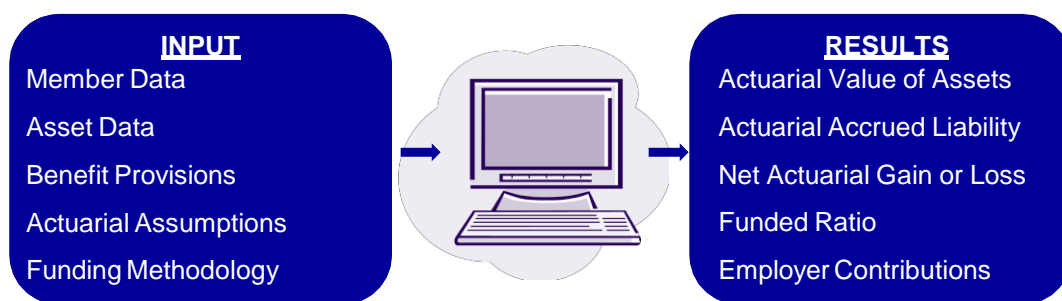
### Purpose of an Actuarial Valuation

The majority of Public Sector Retirement Systems in the State of North Carolina are defined benefit (DB) retirement systems. Under a DB retirement system, the amount of benefits payable to a member upon retirement, termination, death or disability is defined in various contracts and legal instruments and is based, in part, on the member's years of credited service and final compensation. The amount of contribution needed to fund these benefits cannot be known with certainty. A primary responsibility of the Board of Trustees of a Retirement System is to establish and monitor a funding policy for the contributions made to the Retirement System.

While somewhat uncommon, in some jurisdictions, contributions are made by the plan sponsor as benefits come due. This is known as pay-as-you-go financing. More commonly, contributions for benefits are made in advance during the course of active employment of the members. This is known as actuarial pre-funding. For example, the State of North Carolina mandates for the Teachers' and State Employees' Retirement System ("TSERS") that "on account of each member there shall be paid into the pension accumulation fund by employers an amount equal to a certain percentage of the actual compensation of each member to be known as the 'normal contribution' and an additional amount equal to a percentage of the member's actual compensation to be known as the 'accrued liability contribution'. The rate per centum of such contributions shall be fixed on the basis of the liabilities of the Retirement System as shown by actuarial valuation, duly approved by the Board of Trustees, and shall be called the 'actuarially determined employer contribution rate'. The actuarially determined employer contribution rate shall be calculated annually by the actuary using assumptions and a cost method approved by the Actuarial Standards Board of the American Academy of Actuaries and selected by the Board

### The Actuarial Valuation Process

The following diagram summarizes the inputs and results of the actuarial valuation process. A narrative of the process follows the diagram. The reader may find it worthwhile to refer to the diagram from time to time.



Under the actuarial valuation process, current information about Retirement System members is collected annually by staff at the direction of the actuary, namely member data, asset data and information on benefit provisions. Member data is collected for each member of the Retirement System. The member data will assist the actuary in estimating benefits that could be paid in the future. The member information the actuary collects to estimate the amount of benefit includes elements such as current service, salary and benefit group identifier for members that have not separated service; for those that have, the actual benefit amounts are collected. The actuary collects information such as gender and date of birth to determine when a benefit might be paid and for how long.



## Appendix A: Valuation Process and Glossary of Actuarial Terms

The actuary collects summary information about assets as of the valuation date and information on cash flows for the year ending on the valuation date. Information about benefit provisions as of the valuation date is also collected. To bridge the gap between the information collected and potential benefits to be paid in the future, the actuary must make assumptions about future activities. These assumptions are recommended by the actuary to the Boards based on the results of an experience review. An experience review is a review of the Retirement System over a period of time, typically five years, where the actuary analyzes the demographic and economic assumptions of the Retirement System. Based on this review, the actuary will make recommendations on the demographic assumptions, such as when members will be projected to retire, terminate, become disabled and/or die in the future, as well as the economic assumptions, such as what rate of return is projected to be earned by the fund based on the Retirement System investment policy and what level of future salary increases is expected for members. To maintain the assumptions, the Board should adopt a prudent policy of having an experience review being performed every five years. The next experience review for the North Carolina Retirement Systems will be based on the five-year period ending on December 31, 2019 and will be presented during 2020. Using these assumptions, the actuary is able to use the member data, asset data and benefit provision information collected to project the benefits that will be paid from the Retirement System to current members. These projected future benefit payments are based not only on service and pay through the valuation date but includes future pay and service, which has not yet been earned by the members but is expected to be earned.

These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of the Retirement System. The PVFB is an estimate of the value of the benefits promised to all members as of a valuation date. If the Retirement System held assets equal to the PVFB and all the assumptions were realized, there would be sufficient funds to pay off all the benefits to be paid in the future for members in the Retirement System as of the valuation date.

The PVFB is a large sum of money, typically much larger than the amount of Retirement System assets held in the trust. The next step is for the actuary to apply the Funding Policy as adopted by the Board to determine the employer contributions to be made to the Retirement System so that the gap between the PVFB and assets is systematically paid off over time. The Funding Policy is adopted by the Board based on discussions with the actuary. When the Board develops a funding policy, a balance between contributions which are responsive to the needs of the Retirement System yet stable should be struck. There are many different funding policies for the Board to consider, and the actuary is responsible for discussing the various features of the funding policies under consideration. Funding Policies are generally reviewed during an experience review, but it is not uncommon to review a funding policy in between, particularly during period where large increases or decreases in contributions are expected. The Funding Policy is composed of three components: the actuarial cost method, the asset valuation method, and the amortization method.

Once the PVFB is developed, an actuarial cost method is used to allocate the PVFB. Under the actuarial cost method, the PVFB is allocated to past, current and future service, respectively known as the actuarial accrued liability (AAL), normal cost (NC) and present value of future normal costs (PVFNC). The actuary computes the liability components (PVFB, NC, AAL, and PVFNC) for each participant in the Retirement System at the valuation date. These liability components are then totaled for the Retirement System. There are many actuarial cost methods. Different actuarial methods will produce different contribution patterns, but do not change the ultimate cost of the benefits. The entry age normal cost method is the most prevalent method used for public sector plans in the United States, because the expected normal cost is calculated in such a way that it will tend to stay level as a percent of pay over a member's career.



## Appendix A: Valuation Process and Glossary of Actuarial Terms

The actuarial accrued liability (AAL) is also referred to as the amount of money the Retirement System should ideally have in the trust. The unfunded actuarial accrued liability (UAAL) is the portion of actuarial accrued liability that is not covered by the assets of the Retirement System. The UAAL can be a negative number, which means that the Retirement System has more assets than actuarial accrued liability. We refer to this condition as overfunded liability in this summary. Having UAAL does not indicate that the Retirement System is in failing actuarial health. UAAL is a common occurrence. Currently, many retirement systems in the United States have UAAL as a result of the Great Recession of 2008. Another related statistic of the Retirement System is the funded ratio. The funded ratio is the percent of the actuarial accrued liabilities covered by the actuarial value of assets. The assets used for these purposes are an actuarial value of assets (AVA), not market. The actuarial value of assets is based on the asset valuation method as recommended by the actuary and adopted by the Board. An actuarial value of assets is a smoothed, or averaged, value of assets, which is used to limit employer contribution volatility. Typically, assets are smoothed, or averaged, over a period of 3 to 5 years, although longer periods are becoming more common. By averaging returns, the UAAL is not as volatile, which we will see later results in contributions that are not as volatile as well. The North Carolina Retirement Systems use an actuarial value of assets with a smoothing period of 5 years.

While having UAAL is common, it is acceptable only if it is systematically being paid off. The method by which the UAAL is paid off is known as the amortization method. The concept is similar to that of a mortgage payment. The Board adopts the amortization method used to pay off the UAAL over a period of time. The amortization method is composed of the amortization period, the amount of payment increase, whether the period is open or closed and by the amount of amortization schedules. The amortization period is the amount of time over which the UAAL will be paid off. This is generally a period of thirty years or less, but actuaries are beginning to recommend shorter periods. The payments can be developed to stay constant from year to year like a mortgage, but often they are developed to increase each year at the same level payroll increases. Amortization type can be closed or open. Under a closed period, the UAAL is expected to be paid off over the amortization period. This is similar to a typical mortgage. Under an open period, the amortization period remains unchanged year after year. The concept is similar to re-mortgaging annually. In many instances, an amortization schedule is developed, whereby the UAAL is amortized over a closed period from the point the UAAL is incurred. Finally, some amortization methods are defined by a schedule of payments, where a new schedule of payments is added with each valuation. Regardless of the amortization type or period, the funding policy should generate a contribution that pays off the UAAL, which results in the funded ratio trending to 100% over time. Caution should be used when an open method is used, because typically an open amortization policy does not result in the UAAL being paid off. North Carolina pays off a much larger amount of UAAL compared to other states. While many states struggle to pay a 30- year level percent of pay UAAL contribution, which doesn't even reduce the amount of UAAL, North Carolina pays down the UAAL with level dollar payments over 12 years. This aggressive payment schedule of the UAAL results in North Carolina being home to many of the best funded Public Retirement Systems in the United States.

To satisfy the requirements of the State of North Carolina, the actuary calculates the total annual contribution to the Retirement System as the normal cost plus a contribution towards UAAL. Said another way, this contribution is sufficient to pay for the cost of benefits accruing during the year (normal cost) plus the mortgage payment (UAAL payment). The total contribution is reduced by the amount of member contributions, if any, to arrive at the employer contribution. Continuing to follow the aggressive North Carolina contribution policy will keep the North Carolina Retirement Systems among the best funded in the United States.





## Appendix A: Valuation Process and Glossary of Actuarial Terms

An actuarial valuation report is produced annually, which contains the contribution for the fiscal year as well as the funded ratio of the Retirement System. The primary purpose of performing an actuarial valuation annually is to replace the estimated activities from the previous valuation, which were based on assumptions, with the actual experience of the Retirement System for the prior year. The experience gain (loss) is the difference between the expected and the actual UAAL of the Retirement System. An experience loss can be thought of as the amount of additional UAAL over and above the amount that was expected from the prior year due to deviation of actual experience from the assumption. Similarly, an experience gain can be thought of as having less UAAL than that which was expected from the prior year assumptions. As an example, if the Retirement System achieves an asset return of 15% when the assumption was a 7.00% return, an actuarial gain is said to have happened, which typically results in lower contributions and higher funded ratio, all else being equal. Alternatively, a return of 2% under the same circumstances would result in an actuarial loss, requiring an increase in contributions and a funded ratio that is lower than anticipated. Experience gains and losses are common within the valuation process. Typically gains and losses offset each other over time. To the extent that does not occur, the reasons for the gains and losses should be understood, and appropriate recommendations should be made by the actuary after an experience review to adjust the assumptions.

The actuarial valuation report will contain histories of key statistics from prior actuarial valuation reports. In particular, a history of the funded ratio of the Retirement System is an important exhibit. Trustees should understand the reason for the trend of the funded ratio of the Retirement System over time. The actuary will discuss the reasons for changes in the funded ratio of the Retirement System with each valuation report. To the extent that there are unexplained changes in funded ratio corrective action should be explored and the actuary will make recommendations as to whether there should be changes in the assumptions, funding policy, or some other portion of the actuarial valuation process.

In addition to historical information, projections of contributions and funded ratio based on current assumptions can sometimes be found in an actuarial valuation report. Projections of contributions can allow the employer to plan their budget accordingly. Surprises in Retirement System contributions to be paid by the employer serve no one. A one-year projection based on "bad" asset returns can provide ample time for the employer to plan, or allow for a discussion of changing the funding policy to occur. Contribution surprises are a primary contributor to employers considering pension reform. It is important to keep the employer apprised of future contribution requirements. A projection of funded ratio can serve the Trustees by illustrating the trend of the funded ratio over time. The funded ratio, under a prudent funding policy, should trend to 100% over a period of less than 30 years. (It is worthwhile to note that while 30 years has served as an industry standard for the longest period over which 100% funding should be achieved, that period is coming under scrutiny by the actuarial community and will likely be shortened.) If a projection of funded ratio does not trend to 100% over time, consideration should be given to fixing the funding policy to achieve this goal. For the North Carolina Retirement Systems, projections are generally performed for the January board meetings. While the projection period has tended to be limited to five years, a longer projection would show the funded ratio trend to 100% much faster than other Public Retirement Systems.





## Appendix A: Valuation Process and Glossary of Actuarial Terms

The actuarial report will contain schedules of information about the census, plan and asset information submitted by Retirement System staff upon which the actuarial valuation is based. It is important that the Board of Trustees review that information and determine if the information is consistent with their understanding of the Retirement System. If after questioning staff, the Board of Trustees is not comfortable that the information provided is correct, the actuary should be notified to determine if the actuarial valuation report should be corrected.

Finally, the valuation report and/or presentation should contain sufficient information in an understandable fashion to allow the Board to take action and adopt the contribution rate for the upcoming year. It should also allow stakeholders to understand key observations over the past year that resulted in contributions increasing (or decreasing) and where contributions are headed. The actuary is always open to making the results understandable. CMC works with the North Carolina Retirement Systems Division to make your reports and presentations understandable and actionable. If something doesn't make sense – speak up!!



## Appendix A: Valuation Process and Glossary of Actuarial Terms

### Glossary

Note that the first definitions given are the “official” definitions of the term. For some terms there is a second definition, in italics, which is the unofficial definition.

**Actuarial Accrued Liability (AAL).** The portion of the Present Value of Projected Benefits (PVFB) allocated to past service. Also difference between (i) the actuarial present value of future benefits, and (ii) the present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.” The amount of money that should be in the fund. The funding target.

**Actuarial Assumptions.** Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Demographic (“people”) assumptions (rates of mortality, separation, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic (“money”) assumptions (salary increases and investment income) consist of an underlying rate appropriate in an inflation-free environment plus a provision for a long-term average rate of inflation. Estimates of future events used to project what we know now- current member data, assets, and benefit provisions – into an estimate of future benefits.

**Actuarial Cost Method.** A mathematical budgeting procedure for allocating the dollar amount of the Present Value of Projected Benefits (PVFB) between the normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

**Actuarial Methods.** The collective term for the Actuarial Cost Method, the Amortization Payment for UAAL Method, and the Asset Valuation Method used to develop the contribution requirements for the Retirement System. *The funding policy.*

**Actuarial Equivalent.** Benefits whose actuarial present values are equal.

**Actuarial Present Value.** The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

**Actuarial Value of Assets (AVA).** A smoothed value of assets which is used to limit contribution volatility. Also known as the funding value of assets. *Smoothed value of assets.*



## Appendix A: Valuation Process and Glossary of Actuarial Terms

**Amortization Payment for UAAL.** Payment of the unfunded actuarial accrued liability by means of periodic contributions of interest and principal, as opposed to a lump sum payment. The components of the amortization payment for UAAL include:

- Amortization Period Length – Generally amortization periods up to 15 to 20 years (and certainly not longer than 30) are allowed. Similar to a mortgage, the shorter the amortization period, the higher the payment and the faster the UAAL is paid off.
- Amortization payment increases – Future payments can be level dollar, like a mortgage, or as a level percent of pay. Most Retirement Systems amortize UAAL as a level percent of pay which when combined with the employer normal cost that is developed as a level percent of pay can result in contributions that are easier to budget.
- Amortization type – An amortization schedule can be closed or open. A closed amortization schedule is similar to a mortgage – at the end of the amortization period the UAAL is designed to be paid off. An open amortization period is similar to refinancing the UAAL year after year.
- Amortization schedule – UAAL can be amortized over a single amortization period, or it can be amortized over a schedule.

*The amortization payment for UAAL can be thought of as the UAAL mortgage payment.*

**Asset Valuation Method.** The components of how the actuarial value of assets is to be developed. LGERS uses a five-year smoothing of asset gains and losses, which is the most commonly used method

**Experience Gain (Loss).** A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used. *The experience Gain (Loss) represents how much the actuary missed the mark in a given year.*

**Funded Ratio.** The percent of the actuarial accrued liabilities covered by the actuarial value of assets. Also known as the funded status. *The ratio of how much money you actually have in the fund to the amount you should have in the fund.*

**Normal Cost.** The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” An amortization payment toward the unfunded actuarial accrued liability is paid in addition to the normal cost to arrive at the total contribution in a given year. *The cost of benefits accruing during the year.*

**Present Value of Future Normal Cost (PVFNC).** The portion of the Present Value of Projected Benefits (PVFB) allocated to future service. *The value in today's dollars of the amount of contribution to be made in the future for benefits accruing for members in the Retirement System as of the valuation date.*



## Appendix A: Valuation Process and Glossary of Actuarial Terms

**Present Value of Future Benefits (PVFB).** The projected future benefit payments of the plan are discounted into today's dollars using an assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of the Retirement System. The PVFB is the discounted value of the projected benefits promised to all members as of a valuation date, including future pay and service for members which has not yet been earned. *If the Retirement System held assets equal to the PVFB and all the assumptions were realized, there would be sufficient funds to pay off all the benefits to be paid in the future for members in the Retirement System as of the valuation date.*

**Reserve Account.** An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

**Unfunded Actuarial Accrued Liability (UAAL).** The difference between the actuarial accrued liability (AAL) and actuarial value of assets (AVA). The UAAL is sometimes referred to as "unfunded accrued liability." *Funding shortfall, or prefunded amount if negative.*

**Valuation Date.** The date that the actuarial valuation calculations are performed as of. *Also known as the "snapshot date".*



## Appendix B: Detailed Tabulations of Member Data

**Table B-1: The Number and Average Reported Compensation of Active Members Distributed by Age and Service as of December 31, 2017**

Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	1,252	3,510	57	0	0	0	0	0	0	0	4,819
	7,228	30,835	36,096	0	0	0	0	0	0	0	24,764
25 to 29	1,302	9,129	2,646	64	0	0	0	0	0	0	13,141
	7,929	35,831	43,159	44,814	0	0	0	0	0	0	34,586
30 to 34	842	6,459	5,255	2,467	39	0	0	0	0	0	15,062
	8,123	38,100	45,715	48,828	50,108	0	0	0	0	0	40,869
35 to 39	682	4,658	3,879	4,758	1,641	45	0	0	0	0	15,663
	8,460	39,410	46,702	51,625	54,692	59,390	0	0	0	0	45,237
40 to 44	547	3,797	3,143	3,695	3,766	1,495	28	0	0	0	16,471
	8,372	39,744	46,920	51,845	58,368	61,728	62,749	0	0	0	49,079
45 to 49	511	3,723	3,106	3,349	3,324	3,750	1,480	25	0	0	19,268
	7,836	39,532	46,351	51,077	56,954	64,428	67,707	68,293	0	0	51,850
50 to 54	373	2,971	2,651	2,966	2,548	2,414	2,393	548	6	0	16,870
	8,719	39,535	45,722	49,819	53,748	61,259	68,289	70,191	66,284	0	51,973
55 to 59	320	2,524	2,231	2,572	2,225	1,770	1,505	831	174	10	14,162
	8,114	39,509	46,382	48,350	51,575	57,992	63,662	70,081	75,204	63,144	50,510
60 to 64	136	1,426	1,574	1,767	1,495	1,125	846	436	224	80	9,109
	8,440	37,494	45,480	48,462	50,623	55,659	59,129	67,197	73,923	74,620	49,619
65 to 69	62	501	590	624	445	308	222	127	67	66	3,012
	6,601	34,543	44,506	50,123	54,163	53,932	59,588	62,988	88,069	86,221	49,397
70 & Over	26	229	263	242	173	108	58	44	27	32	1,202
	4,642	24,031	28,864	37,383	48,421	48,692	56,020	56,169	58,552	92,415	38,399
Total	6,053	38,927	25,395	22,504	15,656	11,015	6,532	2,011	498	188	128,779
	7,945	37,417	45,647	50,198	54,976	60,969	65,476	68,711	75,348	81,111	46,160



## Appendix B: Detailed Tabulations of Member Data

**Table B-2: The Number and Reported Compensation of Active Members Distributed by Age as of December 31, 2017**

Age	Men		Women	
	Number	Compensation	Number	Compensation
18	16	69,972	0	0
19	113	1,167,709	18	221,163
20	190	3,400,585	39	510,813
21	332	6,974,142	114	2,242,213
22	641	15,046,547	242	4,609,059
23	853	23,196,356	443	10,138,358
24	1,141	34,343,572	677	17,416,631
25	1,370	44,995,599	821	24,088,559
26	1,535	52,541,520	969	29,194,644
27	1,722	62,331,822	1,012	32,506,909
28	1,725	64,347,855	1,116	37,000,042
29	1,754	68,400,160	1,117	39,085,354
30	1,739	70,675,923	1,125	40,312,773
31	1,803	75,191,961	1,180	43,688,584
32	1,872	80,681,343	1,218	45,452,492
33	1,834	81,452,568	1,251	48,038,901
34	1,787	79,555,047	1,253	50,520,772
35	1,853	85,172,971	1,271	52,669,144
36	1,861	86,909,398	1,319	54,181,097
37	1,817	86,385,999	1,334	56,013,559
38	1,742	83,124,964	1,308	55,447,544
39	1,725	85,937,829	1,433	62,708,972
40	1,711	85,860,228	1,406	61,921,261
41	1,862	95,114,998	1,432	63,742,245
42	1,780	93,028,438	1,349	60,427,906
43	1,967	105,030,018	1,489	68,244,730
44	1,938	104,587,196	1,537	70,424,136
45	2,033	109,765,115	1,466	65,948,518
46	2,314	129,331,843	1,644	76,185,779
47	2,336	132,476,980	1,847	86,803,759
48	2,200	124,645,194	1,761	82,561,089
49	2,071	118,032,850	1,596	73,397,519
50	2,012	114,918,343	1,596	75,930,526
51	1,842	104,128,199	1,520	71,866,102
52	1,724	96,316,720	1,601	75,065,859
53	1,709	94,515,126	1,569	73,131,664
54	1,673	94,484,772	1,624	76,431,812
55	1,565	85,170,710	1,595	75,101,216
56	1,403	77,333,710	1,517	72,487,358
57	1,329	71,940,455	1,537	71,018,650



## Appendix B: Detailed Tabulations of Member Data

**Table B-2: The Number and Reported Compensation of Active Members Distributed by Age as of December 31, 2017 (continued)**

Age	Men		Women	
	Number	Compensation	Number	Compensation
58	1,194	64,773,610	1,443	67,506,167
59	1,199	66,260,453	1,380	63,726,313
60	1,103	59,239,271	1,307	60,615,181
61	1,009	53,754,318	1,123	52,305,055
62	904	47,258,284	994	44,650,775
63	671	36,976,175	791	36,373,020
64	580	31,616,281	627	29,190,812
65	478	26,274,788	518	24,885,089
66	376	21,145,761	375	16,433,737
67	273	14,135,016	254	11,385,291
68	208	10,452,296	198	8,747,701
69	175	8,383,700	157	6,939,379
70	134	6,070,642	137	5,353,591
71	127	5,727,650	103	4,374,524
72	85	3,486,928	70	2,392,950
73	56	2,233,157	41	1,445,594
74	58	2,367,956	50	1,612,638
75	54	2,160,336	38	1,352,170
76	37	987,139	19	550,514
77	29	1,199,686	13	423,356
78	18	532,603	11	297,959
79	15	395,670	7	245,118
80	23	939,646	10	224,895
81	11	268,288	4	103,869
82	4	101,052	6	132,963
83	3	156,232	13	394,911
84	5	120,139	2	10,584
85	4	107,338	2	17,889
86	3	82,114	2	50,863
88	2	63,176	0	0
89	2	43,708	1	52,311
90	1	44,533	0	0
91	1	16,809	0	0
93	0	0	1	14,614
Total	71,736	3,495,959,494	57,043	2,448,547,545



## Appendix B: Detailed Tabulations of Member Data

**Table B-3: The Number and Reported Compensation of Active Members Distributed by Service as of December 31, 2017**

Service	Men		Women	
	Number	Compensation	Number	Compensation
0	3,125	24,834,422	2,928	23,258,193
1	6,501	199,901,081	6,044	180,689,540
2	5,412	218,786,772	4,893	187,042,932
3	4,655	198,085,319	4,099	162,773,523
4	4,018	173,331,104	3,305	135,920,176
5	3,605	163,314,728	3,206	138,056,140
6	3,137	145,274,098	2,385	100,562,047
7	2,590	121,114,255	1,906	83,789,098
8	2,407	118,507,972	1,752	79,098,428
9	2,596	127,474,497	1,811	82,010,515
10	3,083	156,402,283	2,396	108,349,753
11	2,694	137,723,386	2,048	95,138,274
12	2,584	136,625,249	1,963	93,526,023
13	2,410	129,553,504	1,665	81,062,528
14	2,098	114,668,971	1,563	76,605,379
15	1,819	101,546,881	1,255	62,855,610
16	1,698	96,705,762	1,306	65,861,382
17	1,826	105,841,122	1,374	68,664,425
18	1,842	110,237,669	1,441	73,154,598
19	1,794	109,254,138	1,301	66,690,403
20	1,510	94,806,878	1,114	59,766,857
21	1,406	89,301,980	916	50,487,790
22	1,237	81,720,065	885	48,015,651
23	1,203	79,640,335	857	48,445,471
24	1,116	75,376,229	771	44,011,117
25	924	64,316,216	590	33,160,289
26	750	51,335,946	515	29,016,509
27	805	55,947,680	516	31,496,652
28	833	59,581,950	494	29,956,751
29	630	44,364,003	475	28,515,991
30	390	28,236,643	350	21,826,027
31	254	18,937,732	200	12,115,468
32	180	13,272,327	171	10,932,909
33	170	13,186,896	124	8,302,008
34	80	5,778,507	92	5,589,642
35	78	6,653,238	70	4,617,812





## Appendix B: Detailed Tabulations of Member Data

**Table B-3: The Number and Reported Compensation of Active Members Distributed by Service as of December 31, 2017 (continued)**

Service	Men		Women	
	Number	Compensation	Number	Compensation
36	64	5,235,092	41	2,525,042
37	54	4,688,001	47	2,934,890
38	36	2,950,219	42	2,676,410
39	33	3,168,424	33	2,074,314
40	32	2,387,807	23	1,618,771
41	17	1,704,752	19	1,232,295
42	13	1,519,021	15	895,343
43	7	566,216	8	759,326
44	5	466,500	9	699,324
45	2	301,999	5	216,801
46	2	96,958	9	723,462
47	3	334,689	5	419,620
48	2	228,525	2	174,533
49	2	242,015	0	0
50	2	211,589	0	0
51	2	217,850	1	92,640
52	0	0	1	45,658
56	0	0	1	47,286
63	0	0	1	45,921
Total	71,736	3,495,959,494	57,043	2,448,547,545



## Appendix B: Detailed Tabulations of Member Data

**Table B-4: The Number and Accumulated Contributions of Terminated Vested Members Distributed by Age as of December 31, 2017**

Age	Men		Women	
	Number	Contributions	Number	Contributions
19	12	2,757	5	1,614
20	31	25,965	1	173
21	74	82,965	16	13,009
22	139	165,945	41	48,266
23	234	354,635	92	102,059
24	332	633,218	168	257,230
25	388	892,038	256	520,606
26	511	1,358,643	334	834,699
27	605	2,000,191	472	1,416,961
28	734	3,036,696	532	1,745,771
29	748	3,354,201	643	2,400,499
30	810	4,039,544	722	2,904,154
31	900	4,819,438	787	3,852,818
32	889	5,443,736	803	4,550,406
33	1,015	6,917,419	945	5,955,741
34	911	6,828,599	930	6,595,968
35	1,005	8,163,963	1,003	7,520,847
36	945	8,661,154	997	8,258,065
37	925	8,493,751	1,062	8,735,052
38	918	9,518,771	1,128	9,559,322
39	856	9,786,051	1,117	11,046,682
40	880	10,299,176	1,092	10,678,178
41	916	11,338,599	1,052	11,529,704
42	835	10,968,322	1,064	11,701,264
43	870	12,490,388	1,160	13,657,026
44	907	13,236,847	1,131	14,157,974
45	924	14,866,999	1,117	14,925,437
46	931	14,666,316	1,105	15,689,469
47	1,065	17,234,471	1,269	17,505,578
48	969	16,547,401	1,160	17,056,814
49	867	15,469,751	1,070	16,824,129
50	818	14,510,752	995	15,634,015
51	788	12,837,868	935	14,795,066
52	744	12,438,827	933	15,685,852
53	794	14,743,989	908	16,255,985
54	706	14,013,689	934	16,490,072



## Appendix B: Detailed Tabulations of Member Data

**Table B-4: The Number and Accumulated Contributions of Terminated Vested Members Distributed by Age as of December 31, 2017**  
(continued)

Age	Men		Women	
	Number	Contributions	Number	Contributions
55	627	11,277,112	944	16,440,018
56	650	12,032,315	932	17,191,662
57	606	10,782,961	887	16,065,326
58	540	11,196,009	828	16,601,030
59	475	9,649,783	820	16,475,604
60	423	9,386,160	754	16,004,052
61	374	6,860,813	541	11,778,099
62	367	6,952,541	526	9,986,237
63	348	5,562,795	501	9,238,569
64	272	3,984,745	423	7,519,569
65	224	3,517,358	362	7,000,303
66	169	2,125,890	217	2,723,859
67	131	1,384,180	201	2,849,759
68	134	1,219,504	175	2,696,211
69	122	1,224,000	165	1,659,858
70	100	767,998	99	984,059
71	60	535,978	65	540,328
72	26	170,588	11	49,482
73	9	63,751	6	43,136
74	10	34,028	6	74,020
75	14	164,163	7	65,411
76	11	31,943	4	19,363
77	4	11,558	4	72,140
78	10	129,605	0	0
79	4	6,582	3	36,290
80	2	12,996	5	21,639
81	4	14,699	0	0
82	8	78,101	2	22,845
83	2	2,823	4	13,314
84	3	7,720	0	0
85	4	8,249	2	63,226
86	1	3,928	0	0
88	3	4,513	0	0
100	1	99	0	0
107	1	423	0	0
116	1	539	0	0
117	19	29,571	15	6,845
Total	31,755	389,479,093	36,488	455,148,760



## Appendix B: Detailed Tabulations of Member Data

**Table B-5: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Age as of December 31, 2017**

Age	Men		Women	
	Number	Allowances	Number	Allowances
18	4	40,167	0	0
19	2	35,793	0	0
20	3	19,041	1	65,114
21	1	10,664	0	0
23	1	7,872	1	26,660
24	1	11,727	0	0
25	1	1,750	3	22,366
26	1	2,031	4	66,518
27	1	11,311	4	27,118
28	5	117,269	3	21,813
29	1	1,009	6	47,387
30	5	33,351	4	9,367
31	4	29,668	3	30,675
32	4	30,049	2	16,959
33	9	104,999	5	25,362
34	3	76,750	3	32,644
35	5	78,144	9	72,230
36	9	101,003	10	87,190
37	7	76,549	9	106,891
38	6	56,704	6	70,641
39	6	67,581	10	142,446
40	6	50,817	8	84,316
41	6	54,384	8	56,301
42	10	97,545	12	122,728
43	5	58,285	18	173,687
44	14	179,596	15	143,034
45	8	72,873	13	151,215
46	6	34,241	15	263,810
47	15	133,985	19	151,808
48	34	980,706	27	388,339
49	48	1,419,309	33	475,580
50	123	3,845,983	61	1,102,992



## Appendix B: Detailed Tabulations of Member Data

**Table B-5: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Age as of December 31, 2017 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
51	219	7,513,480	91	2,008,862
52	280	9,469,453	129	2,855,688
53	382	12,763,463	182	4,404,691
54	468	16,375,445	212	5,155,737
55	480	16,243,629	249	6,025,666
56	632	19,761,414	365	10,288,893
57	670	21,760,921	439	11,572,728
58	671	21,847,152	481	12,467,794
59	660	20,422,707	499	12,971,072
60	723	21,733,595	640	16,517,790
61	890	26,538,786	787	18,470,767
62	934	25,469,631	886	18,791,569
63	1,121	28,571,689	1,119	20,965,350
64	1,183	29,713,991	1,184	21,772,770
65	1,275	30,514,478	1,316	23,314,715
66	1,396	31,322,320	1,507	24,077,632
67	1,465	31,624,758	1,507	24,163,174
68	1,349	29,125,236	1,497	24,294,593
69	1,385	29,198,868	1,474	22,703,361
70	1,392	28,403,671	1,506	23,110,605
71	1,441	27,936,952	1,582	23,815,037
72	944	18,134,788	1,135	16,532,124
73	948	17,959,607	1,103	16,685,947
74	784	14,328,480	1,004	13,648,666
75	856	15,832,281	1,019	13,839,544
76	667	11,799,903	867	11,331,572
77	597	10,565,027	754	9,639,099
78	563	9,679,983	742	9,684,403
79	487	8,362,685	715	9,127,719
80	473	7,940,046	627	7,784,131



## Appendix B: Detailed Tabulations of Member Data

**Table B-5: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Age as of December 31, 2017 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
81	458	7,654,383	640	7,566,753
82	391	6,559,447	568	7,265,351
83	358	5,714,154	516	6,153,327
84	317	4,691,207	459	5,269,223
85	259	4,057,298	423	4,788,888
86	246	3,831,310	403	4,469,982
87	191	2,893,202	379	4,629,181
88	154	2,520,765	324	3,334,393
89	135	1,841,050	291	3,642,663
90	111	1,691,619	242	2,577,088
91	85	1,296,108	217	2,172,300
92	71	1,055,018	154	1,845,665
93	48	720,531	121	1,197,101
94	31	447,717	99	986,007
95	31	433,062	71	774,324
96	22	248,487	60	488,185
97	9	118,460	37	266,596
98	3	22,929	36	339,812
99	3	108,885	23	223,396
100	9	132,277	36	276,170
Total	28,621	654,793,505	31,029	500,273,293



## Appendix B: Detailed Tabulations of Member Data

**Table B-6: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Annuity Type as of December 31, 2017**

Annuity Type	Men		Women	
	Number	Allowances	Number	Allowances
0:Maximum	9,346	193,259,221	15,807	250,266,759
1:Option 1: 10-year guaranteed	271	5,334,289	427	4,855,024
2:Option 2: 100% joint and survivor	6,170	140,082,672	1,520	22,113,207
3:Option 3: 50% joint and survivor	1,764	44,028,494	835	14,440,254
4:Option 4: Social security leveling	2,562	63,819,745	3,060	62,660,241
5:Option 5- 2:100% joint and surv.	44	870,469	12	83,527
6:Option 5-3: 50% joint and surv.	18	505,667	18	262,903
7:Option 6-2: 100% joint and surv. w / pop-up	5,395	139,114,667	2,083	39,711,770
8:Option 6-3: 50% joint and surv. w / pop-up	2,063	57,203,154	1,592	35,359,118
9:Special	6	186,391	1	7,631
3:Survivor	982	10,388,736	5,674	70,512,858
Total	28,621	654,793,505	31,029	500,273,293



## Appendix B: Detailed Tabulations of Member Data

**Table B-7: The Number and Annual Retirement Allowances of Retired Members (Disabled at Retirement) Distributed by Age of December 31, 2017**

Age	Men		Women	
	Number	Allowances	Number	Allowances
28	1	15,212	0	0
29	2	42,979	0	0
30	2	43,555	0	0
31	1	21,518	3	64,515
32	6	140,218	2	48,358
33	5	114,365	0	0
34	8	168,053	4	76,923
35	14	280,631	5	117,529
36	12	227,072	3	59,104
37	18	382,338	8	208,383
38	23	493,682	6	134,173
39	23	454,125	7	150,269
40	22	450,447	13	238,677
41	24	523,293	20	376,879
42	39	827,205	18	359,238
43	35	797,435	18	359,365
44	45	1,035,593	19	389,938
45	52	1,066,775	33	656,065
46	81	1,758,401	42	922,095
47	102	2,310,601	37	770,902
48	104	2,230,467	59	1,154,787
49	118	2,678,385	52	937,421
50	95	1,994,828	68	1,468,119
51	137	2,953,157	71	1,402,428
52	132	2,770,449	81	1,491,253
53	122	2,672,667	83	1,670,851
54	164	3,407,512	104	2,050,210
55	179	3,648,119	91	1,660,533
56	187	3,487,636	129	2,387,983
57	164	3,004,388	121	2,167,498
58	171	3,225,888	137	2,589,395
59	161	3,112,525	166	2,742,224
60	161	2,863,757	133	2,215,393
61	199	3,677,676	141	2,313,854
62	193	3,620,826	167	2,742,271
63	221	4,215,157	145	2,429,032





## Appendix B: Detailed Tabulations of Member Data

**Table B-7: The Number and Annual Retirement Allowances of Retired Members (Disabled at Retirement) Distributed by Age of December 31, 2017 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
64	210	4,136,790	141	2,282,640
65	187	3,690,016	133	2,100,118
66	230	4,980,302	153	2,371,598
67	202	4,044,948	107	1,729,431
68	202	4,407,317	110	1,609,668
69	193	3,910,559	125	1,990,409
70	177	3,754,312	99	1,384,862
71	174	3,577,354	111	1,597,354
72	135	2,696,781	96	1,343,848
73	132	2,800,975	79	1,063,199
74	97	1,854,794	81	1,037,500
75	93	1,843,643	72	950,781
76	63	1,272,198	44	453,159
77	70	1,154,284	47	629,275
78	51	878,753	47	543,766
79	49	822,366	41	456,423
80	44	674,642	28	313,557
81	32	586,863	21	225,813
82	35	542,292	21	229,221
83	22	324,679	13	121,022
84	21	294,042	17	153,131
85	17	235,759	10	76,255
86	10	113,052	6	38,456
87	13	210,464	5	48,745
88	7	120,574	7	66,115
89	1	21,741	1	8,330
90	2	36,571	3	25,658
91	3	65,107	2	20,270
92	4	79,657	1	5,028
93	2	42,556	1	10,529
94	1	9,045	2	20,088
95	0	0	1	10,969
96	0	0	1	4,779
97	0	0	2	13,183
Total	5,502	109,899,369	3,614	59,290,848



## Appendix B: Detailed Tabulations of Member Data

**Table B-8: The Number and Annual Retirement Allowances of Retired Members (Disabled at Retirement) Distributed by Annuity Type of December 31, 2017**

Annuity Type	Men		Women	
	Number	Allowances	Number	Allowances
0:Maximum	3,898	82,730,813	3,129	52,144,818
1:Option 1: 10-year guaranteed	140	2,876,721	62	870,398
2:Option 2: 100% joint and survivor	349	4,974,313	70	875,372
3:Option 3: 50% joint and survivor	356	5,798,058	74	1,051,083
4:Option 4: Social security leveling	9	244,017	10	223,500
5:Option 5- 2:100% joint and surv.	4	81,403	0	0
6:Option 5-3: 50% joint and surv.	9	112,251	1	7,003
7:Option 6-2: 100% joint and surv. w / pop-up	312	5,163,048	98	1,391,855
8:Option 6-3: 50% joint and surv. w / pop-up	417	7,752,091	170	2,726,820
9:Special	8	166,654	0	0
Total	5,502	109,899,369	3,614	59,290,848



## Appendix C: Summary of Main Benefit and Contribution Provisions

The following summary presents the main benefit and contribution provisions of the system, as interpreted in preparing the actuarial valuation. Items in parentheses in the text are the provisions applicable only to law enforcement officers. As used in the summary, "average final compensation" means the average annual compensation of a member during the four consecutive calendar years of creditable service producing the highest such average. "Membership service" means service represented by regular contributions. "Prior service" means service prior to the date of participation of the employer for which credit is allowed. "Creditable service" means the sum of prior service plus membership service. "Creditable service" may also include certain special purchased service.

### BENEFITS

#### Unreduced Retirement Allowance

Condition for Allowance	An unreduced retirement allowance is payable to any member who retires from service after attaining age 65 (55), or after age 60 and completion of 25 years of creditable service, or after completion of 30 years of creditable service.
Amount of Allowance	1.85% of average final compensation multiplied by the number of years of creditable service.

#### Reduced Retirement Allowance Condition for Allowance

A reduced retirement allowance is payable to any member who retires from service after attaining age 60 (50) and completion of 5 (15) years of creditable service (or in the case of a firefighter or rescue squad worker, after attaining age 55 and five years of creditable service), but prior to becoming eligible for an unreduced retirement allowance.

#### Amount of Allowance

The member's reduced retirement allowance is equal to 1.85% of average final compensation multiplied by the number of years of creditable service at the date of retirement reduced by 1/4 of 1% for each month by which the member's age at retirement is less than age 65 (55).

If a firefighter has not attained age 60 nor completed 30 or more years of service at the time of retirement, his or her allowance is the actuarial equivalent of the allowance payable at age 60.

### OR

#### Condition for Allowance

A reduced retirement allowance is payable to any member who retires from service after age 50 and completion of 20 (15) years of creditable service, but prior to becoming eligible for a reduced or unreduced retirement allowance.



## Appendix C: Summary of Main Benefit and Contribution Provisions

Amount of Allowance	<p>The member's reduced retirement allowance is equal to 1.85% Of average final compensation multiplied by the number of years of creditable service at date of retirement reduced by the lesser of:</p> <ul style="list-style-type: none"> <li>(i) <math>5/12</math> (<math>1/3</math>) of 1% for each month by which age is less than 60 (55), plus, if the member is not a law enforcement officer, <math>1/4</math> of 1% for each month by which age is less than 65.</li> <li>(ii) 5% times the difference between 30 years and creditable service at retirement.</li> </ul>
---------------------	--

OR

Condition for Allowance	A reduced retirement allowance is payable to any law enforcement officer who retires from service at any age with 25 years of service, but prior to becoming eligible for a reduced or unreduced retirement allowance.
Amount of Allowance	<p>The member's reduced retirement allowance is equal to 1.85% of average final compensation multiplied by the number of years of creditable service at date of retirement reduced by the greater of:</p> <ul style="list-style-type: none"> <li>(i) <math>5/12</math> (<math>1/3</math>) of 1% for each month by which his or her age is less than 55,</li> <li>(ii) 5% times the difference between 30 years and creditable service at retirement plus 4% times the difference between age 50 and the member's age at retirement.</li> </ul>



## Appendix C: Summary of Main Benefit and Contribution Provisions

### Disability Retirement Allowance

#### Condition for Allowance

A disability retirement allowance may be granted to a member who becomes totally and permanently incapacitated for duty before becoming eligible for an unreduced retirement allowance, and who had five or more years of creditable service. A law enforcement officer, firefighter or rescue squad worker who becomes totally and permanently disabled as the natural and proximate result of an accident occurring in the actual performance of duty may also be retired on a disability retirement allowance.

#### Amount of Allowance

On retirement for disability a member receives a service retirement allowance after attaining age 65 (55) or attaining age 60 and completion of 25 years of creditable service or completion of 30 years of creditable service; otherwise the allowance is equal to the retirement allowance calculated on the basis of average final compensation at time of disability retirement and service projected to the earliest age at which the member would have qualified for an unreduced retirement allowance except that any member who had five years of creditable service on or before July 1, 1982 shall have service projected to age 65.

### Deferred and Early Retirement Allowance

#### Deferred Allowance

Any member who separates from service prior to becoming eligible for an unreduced or reduced retirement allowance after completing five or more years of creditable service and who leaves his or her total accumulated contributions in the system may receive a deferred retirement allowance, beginning at age 60 (50 or 55), computed in the same way as a reduced retirement allowance on the basis of creditable service and compensation to the date of separation.



## Appendix C: Summary of Main Benefit and Contribution Provisions

### Return of Contributions

Upon the withdrawal of a member without a retirement allowance and upon request, the member's accumulated contributions are returned to him or her, together with accumulated regular interest.

Upon the withdrawal of a member without a retirement allowance and upon request, the member's accumulated contributions are returned to him or her, together with accumulated regular interest.

Upon the death of a member before retirement, his or her accumulated contributions, together with the full accumulated regular interest thereon, are paid to the estate or to person(s) designated by the member provided no survivor's alternate benefit is payable.

The current interest rate on member contributions is 4%.

### Survivor's Alternate Benefit

Upon the death of a member in service who has attained age 60 (55) and completed five years of creditable service, or completed 20 years of creditable service (or attained age 50 and completed 15 years of creditable service), the designated beneficiary may elect to receive a benefit equal to that which would have been payable under the provisions of Option 2 had the member retired on the first day of the month following his or her death and elected such option, in lieu of the member's accumulated contributions, provided the member had not instructed the Board of Trustees in writing that he or she did not wish the alternate benefit to apply.

Upon the death of a beneficiary, a benefit may be provided by the Retiree's Contributory Death Benefit Plan.

### Death After Retirement

Upon the death of a beneficiary who did not retire under an effective election of Option 2 or Option 3, an amount equal to the excess, if any, of his or her accumulated contributions at retirement over the retirement allowance payments received is paid to a designated person or to the beneficiary's estate.



## Appendix C: Summary of Main Benefit and Contribution Provisions

	<p>Upon the death of the survivor of a beneficiary who retired under an effective election of Option 2 or Option 3, an amount equal to the excess, if any, of the beneficiary's accumulated contributions at retirement over the total retirement allowance payments received is paid to such other person designated by the beneficiary or to the beneficiary's estate.</p>
Other Death Benefits	<p>Upon the death of a member in service, other benefits may be provided by the Death Benefit Plan or Separate Insurance Benefit Plan for Law Enforcement Officers.</p>
Optional Arrangements at Retirement	<p>In lieu of the full retirement allowance any member may, until the first payment of his or her allowance becomes normally due, elect to receive a reduced retirement allowance equal in value to the full allowance with the provision that:</p> <p>Option 1 - A member retiring prior to July 1, 1993, may elect that at his or her death within 10 years from retirement date, an amount equal to his or her accumulated contributions at retirement, less 1/120 for each month the member has received a retirement allowance, is paid to the estate, or to person(s) designated by the member, or</p> <p>Option 2 - At the death of the member his or her allowance shall be continued throughout the life of such other person as the member shall have designated at the time of retirement, or</p> <p>Option 3 - At the death of the member one-half of his or her allowance shall be continued throughout the life of such other person as the member shall have designated at the time of retirement.</p> <p>Option 4 - A member may elect to receive a retirement allowance in such amount that, together with his or her Social Security benefit, he or she will receive approximately the same income per annum before and after the earliest age at which he or she becomes eligible to receive the Social Security benefit.</p> <p>Option 5 - A member retiring prior to July 1, 1993 may elect to receive a reduced retirement allowance under the provisions of Option 2 or Option 3 in conjunction with the provisions of Option 1.</p> <p>Option 6 - The member may elect Option 2 or 3 with the added provision that should the designated beneficiary predecease the member, the allowance which would have been payable to the member had he not elected the option will be payable thereafter.</p>



## Appendix C: Summary of Main Benefit and Contribution Provisions

### Post-Retirement Increases

#### in Allowance

Future increases in allowances may be granted by the Board of Trustees or the State in accordance with G.S. 128-27(k).

#### Service Reciprocity

For the purpose of determining eligibility for a deferred, reduced or unreduced service retirement allowance, the membership and creditable service of a member shall include such prior service earned as a member of the Teachers' and State Employees' Retirement System (TSERS), the Consolidated Judicial Retirement System (CJRS), or the Legislative Retirement System (LRS). In addition, if the member's accumulated contributions and reserves are transferred from the prior System to this System, the creditable service earned as a member of the prior System may be included for purposes of determining the amount of benefits payable under this System.

#### Military Service

Periods of active duty in the United States military may be counted as creditable service if the member was an employee upon entering the military and returned to employment within two years of discharge or for a period of 10 additional years.

#### Service Purchases

Additional creditable service may include service that the member purchased to restore a period of service for which the member (1) received a refund of contributions, (2) had a leave of absence for educational purposes, extended illness or parental or maternity reasons, (3) had full-time temporary or part-time local or State government employment, (4) was in a probationary or waiting period with a unit of the LGERS, (5) had a leave of absence under Workers' Compensation, (6) performed service with a unit of local government not covered by LGERS, (7) performed service with the federal government not covered by any other retirement system, (8) performed service with a public community service entity funded entirely with federal funds, (9) performed service as a member of the General Assembly, (10) performed service as a member of a charter school not participating in the system, (11) was employed by The University of North Carolina and participated in the Optional Retirement Program but not eligible to receive any benefits from that program, or (12) performed service which was omitted by reason of error.





## Appendix C: Summary of Main Benefit and Contribution Provisions

### Unused Sick Leave

Unused sick leave counts as creditable service at retirement. Sick leave which was converted from unused vacation leave is also creditable. One month of credit is allowed for each 20 days of unused sick leave, plus an additional month for any part of 20 days left over.

### Transfer of Defined Contribution

#### Balances

#### (Special Retirement Allowances)

A member may make a one-time election to transfer any portion of their eligible accumulated contributions to this plan on or after retirement. Eligible accumulated contributions are those from the Supplemental Retirement Income Plan or Public Employee Deferred Compensation Plan, not including Roth after-tax contributions. The member may elect to convert the accumulated contributions to a life annuity with or without annual increases equal to the annual increase in the U.S. Consumer Price Index. Any ad-hoc COLA increases granted will not apply to benefits under this section. A member may elect Options 2, 3, or 6 under the Plan and may also elect either a guaranteed number of months of payments or a guarantee of total payments at least equal to the amount of contributions transferred to the Plan. In addition, any transfer may be paid in whole or in part with employer contributions paid directly to the Retirement System at the time of transfer.

### Contributions

#### By Members

Members contribute 6% of compensation.

#### By Employers

Participating employers make annual contributions consisting of a normal contribution and an accrued liability contribution. The normal contribution covers the liability on account of current service and is determined by the actuary after each valuation. The accrued liability contribution rate for each participating employer is set on the basis of a separate initial actuarial valuation to cover the cost of benefits provided by the employer for service rendered prior to the date of participation. Adjustments in such rates are made when required by amendments to the system. For fiscal years beginning subsequent to January 1, 2017, the sum of the normal contribution and the accrued liability contribution shall not be less than the employee contribution.

### Changes Since Prior Valuation

House Bill 284 added eligibility for early reduced benefits at 25 years of creditable service for law enforcement officers. No one is assumed to retire under this provision, because it would reduce the actuarial value of their benefit under this plan.



## Appendix D: Actuarial Assumptions and Methods

Assumptions are based on the experience investigation prepared as of December 31, 2014 and adopted by the Board of Trustees on January 21, 2016 for use beginning with the December 31, 2015 annual actuarial valuation. The interest rate of 7.00% was adopted by the Board of Trustees on April 26, 2018.

**Interest Rate:** 7.00% 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.

**Payroll Growth:** 3.50% per annum.

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

### Annual Rates of Withdrawal

Service	General Employees		Firefighters & Rescue Squad Workers		Law Enforcement Officers	
	Male	Female	Male	Female	Male	Female
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

#### Annual Rates

Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
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 D: Actuarial Assumptions and Methods

### 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 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 D: Actuarial Assumptions and Methods

**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 D: Actuarial Assumptions and Methods

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

<u>Service</u>	<b><u>Annual Rate of Salary Increase</u></b>		
	<u>General Employees</u>	<u>Firefighters &amp; Rescue Squad Workers</u>	<u>Law 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:

### **Annual Rate of Death after Retirement**

(Members Healthy at Retirement)

<u>Age</u>	<u>General Employees</u>		<u>Firefighters &amp; 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 D: Actuarial Assumptions and Methods

<u>Age</u>	<b>Annual Rate of Death after Retirement</b> (Survivors of Deceased Members and Members Disabled at Retirement)			
	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 all ages. 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. 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.



## Appendix D: Actuarial Assumptions and Methods

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

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

**Leave Conversions:**

	General		Law Enforcement		Fire & Rescue Squad	
	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>
Increase in AFC	1.50%	1.50%	1.50%	1.50%	1.75%	1.75%
Increase in Creditable Service (years)						
Credited	0.95	0.65	1.20	1.20	1.25	1.25
Eligibility	1.00	1.00	1.00	1.00	1.00	1.00

**Liability for Inactive Members:** The data provided for inactive members does not contain all the elements to calculate the member's deferred benefit. The liability for these members is estimated to be 200% of the member's accumulated contributions. The actuary is collecting data so that future members' deferred benefits can be estimated.

**Administrative Expenses:** 0.20% of payroll for general employees and firefighters.

**Marriage Assumption:** 100% married with male spouses four years older than female spouses.

**Reported Compensation:** Calendar year compensation as furnished by the system's office.

**Valuation Compensation:** Reported compensation adjusted to reflect the assumed rate of pay as of the valuation date.

**Actuarial Cost Method:** Entry age normal cost method. Entry age is established on an individual basis.

**Normal Cost :** Normal cost rate reflects the impact of new entrants during the year

**Amortization Period:** 12-year closed, level-dollar amount. The first amortization base was created for the contribution payable for fiscal year ending 2018.



## Appendix D: Actuarial Assumptions and Methods

**Asset Valuation Method:** Actuarial value, as developed in Table 7. The actuarial value of assets is based upon a smoothed market value method. Under this method, asset returns in excess of or less than the expected return on market value of assets will be reflected in the actuarial value of assets over a five-year period. The calculation of the Actuarial Value of Assets is based on the following formula:

$$MV - 80\% \times G/(L)_1 - 60\% \times G/(L)_2 - 40\% \times G/(L)_3 - 20\% \times G/(L)_4$$

MV = the market value of assets as of the valuation date

$G/(L)_i$  = the asset gain or (loss) for the i-th year preceding the valuation date

**Changes Since Prior Valuation:** The interest rate was changed from 7.20% to 7.00%, with this change phased into the employer contribution rate using direct-rate smoothing over a three-year period.





## Appendix E: GASB 67 Fiduciary Net Position Projection

**Table E-1: Projection of Fiduciary Net Positions**  
(in thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2018	\$ 25,918,361	\$ 387,165	\$ 487,435	\$ 1,554,509	\$ 10,418	\$ 1,790,532	\$ 27,018,567
2019	27,018,567	367,310	505,754	1,628,107	9,884	1,864,980	28,118,620
2020	28,118,620	350,144	504,865	1,702,794	9,422	1,938,809	29,200,221
2021	29,200,221	334,848	504,137	1,777,205	9,010	2,011,423	30,264,414
2022	30,264,414	320,728	503,005	1,854,424	8,630	2,082,748	31,307,842
2023	31,307,842	307,012	500,223	1,938,802	8,261	2,152,330	32,320,343
2024	32,320,343	293,273	497,098	2,030,135	7,891	2,219,495	33,292,183
2025	33,292,183	279,313	483,548	2,122,895	7,516	2,283,398	34,208,031
2026	34,208,031	265,330	469,991	2,214,895	7,140	2,343,407	35,064,725
2027	35,064,725	251,422	456,541	2,306,289	6,765	2,399,303	35,858,936
2028	35,858,936	237,632	397,570	2,396,111	6,394	2,449,316	36,540,950
2029	36,540,950	224,024	307,009	2,484,278	6,028	2,490,452	37,072,129
2030	37,072,129	210,591	227,419	2,570,502	5,667	2,521,479	37,455,449
2031	37,455,449	197,410	180,196	2,653,723	5,312	2,543,382	37,717,402
2032	37,717,402	184,653	168,453	2,732,166	4,969	2,558,188	37,891,562
2033	37,891,562	172,186	156,897	2,653,424	4,633	2,572,274	38,134,862
2034	38,134,862	159,836	145,556	2,726,251	4,301	2,585,995	38,295,696
2035	38,295,696	147,619	124,118	2,797,029	3,972	2,593,672	38,360,104
2036	38,360,104	135,601	102,912	2,864,929	3,649	2,594,712	38,324,751
2037	38,324,751	123,729	92,394	2,930,343	3,329	2,589,227	38,196,429
2038	38,196,429	112,038	82,414	2,990,861	3,015	2,577,427	37,974,432
2039	37,974,432	100,843	72,994	3,045,642	2,714	2,559,304	37,659,216
2040	37,659,216	90,176	63,882	3,094,148	2,426	2,534,899	37,251,599
2041	37,251,599	79,772	54,872	3,139,737	2,147	2,504,139	36,748,498
2042	36,748,498	69,392	46,112	3,181,840	1,867	2,466,824	36,147,118
2043	36,147,118	59,158	37,828	3,218,431	1,592	2,422,841	35,446,922
2044	35,446,922	49,338	30,076	3,247,716	1,328	2,372,224	34,649,516
2045	34,649,516	39,993	22,814	3,269,142	1,076	2,315,105	33,757,211
2046	33,757,211	31,134	16,269	3,281,180	838	2,251,708	32,774,303
2047	32,774,303	22,990	11,646	3,275,243	619	2,182,677	31,715,755
2048	31,715,755	16,921	8,699	3,246,823	455	2,109,252	30,603,348
2049	30,603,348	12,842	6,571	3,200,585	346	2,032,765	29,454,594
2050	29,454,594	9,855	4,929	3,143,277	265	1,954,167	28,280,003
2051	28,280,003	7,538	3,695	3,077,371	203	1,874,093	27,087,756
2052	27,087,756	5,745	2,749	3,003,688	155	1,793,079	25,885,485
2053	25,885,485	4,351	2,037	2,923,533	117	1,711,607	24,679,830
2054	24,679,830	3,275	1,492	2,837,885	88	1,630,103	23,476,727
2055	23,476,727	2,446	1,091	2,746,808	66	1,548,978	22,282,368
2056	22,282,368	1,816	782	2,651,594	49	1,468,617	21,101,940
2057	21,101,940	1,335	558	2,553,212	36	1,389,349	19,939,933
2058	19,939,933	975	397	2,452,602	26	1,311,452	18,800,130
2059	18,800,130	708	275	2,350,735	19	1,235,158	17,685,517
2060	17,685,517	510	188	2,248,039	14	1,160,659	16,598,821
2061	16,598,821	364	125	2,145,394	10	1,088,115	15,542,021
2062	15,542,021	257	82	2,043,189	7	1,017,651	14,516,814
2063	14,516,814	180	53	1,941,748	5	949,373	13,524,667
2064	13,524,667	125	33	1,841,373	3	883,374	12,566,824
2065	12,566,824	85	18	1,742,322	2	819,731	11,644,334
2066	11,644,334	57	9	1,644,808	2	758,511	10,758,101
2067	10,758,101	36	4	1,549,023	1	699,770	9,908,886



## Appendix E: GASB 67 Fiduciary Net Position Projection

**Table E-1: Projection of Fiduciary Net Positions (continued)**  
(in thousands)

Calendar Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
2068	\$ 9,908,886	\$ 22	\$ 1	\$ 1,455,147	\$ 1	\$ 643,554	\$ 9,097,315
2069	9,097,315	13	-	1,363,348	-	589,902	8,323,883
2070	8,323,883	7	-	1,273,765	-	538,844	7,588,969
2071	7,588,969	4	-	1,186,549	-	490,401	6,892,825
2072	6,892,825	2	-	1,101,840	-	444,586	6,235,573
2073	6,235,573	1	-	1,019,769	-	401,402	5,617,207
2074	5,617,207	-	-	940,461	-	360,845	5,037,591
2075	5,037,591	-	-	864,036	-	322,902	4,496,456
2076	4,496,456	-	-	790,602	-	287,549	3,993,403
2077	3,993,403	-	-	720,257	-	254,756	3,527,901
2078	3,527,901	-	-	653,091	-	224,482	3,099,292
2079	3,099,292	-	-	589,189	-	196,678	2,706,781
2080	2,706,781	-	-	528,635	-	171,285	2,349,431
2081	2,349,431	-	-	471,509	-	148,236	2,026,158
2082	2,026,158	-	-	417,883	-	127,453	1,735,728
2083	1,735,728	-	-	367,823	-	108,845	1,476,750
2084	1,476,750	-	-	321,380	-	92,314	1,247,685
2085	1,247,685	-	-	278,586	-	77,752	1,046,851
2086	1,046,851	-	-	239,446	-	65,041	872,445
2087	872,445	-	-	203,933	-	54,054	722,567
2088	722,567	-	-	171,985	-	44,662	595,244
2089	595,244	-	-	143,511	-	36,729	488,462
2090	488,462	-	-	118,387	-	30,106	400,181
2091	400,181	-	-	96,461	-	24,694	328,414
2092	328,414	-	-	77,555	-	20,320	271,179
2093	271,179	-	-	61,468	-	16,868	226,579
2094	226,579	-	-	47,978	-	14,210	192,811
2095	192,811	-	-	36,843	-	12,229	168,197
2096	168,197	-	-	27,807	-	10,817	151,207
2097	151,207	-	-	20,608	-	9,875	140,475
2098	140,475	-	-	14,984	-	9,318	134,808
2099	134,808	-	-	10,681	-	9,069	133,197
2100	133,197	-	-	7,459	-	9,067	134,804
2101	134,804	-	-	5,103	-	9,261	138,962
2102	138,962	-	-	3,420	-	9,610	145,151
2103	145,151	-	-	2,248	-	10,083	152,987
2104	152,987	-	-	1,451	-	10,659	162,195
2105	162,195	-	-	923	-	11,322	172,593
2106	172,593	-	-	582	-	12,062	184,073
2107	184,073	-	-	365	-	12,873	196,581
2108	196,581	-	-	230	-	13,753	210,103
2109	210,103	-	-	147	-	14,702	224,658
2110	224,658	-	-	96	-	15,723	240,285
2111	240,285	-	-	64	-	16,818	257,038
2112	257,038	-	-	44	-	17,991	274,985
2113	274,985	-	-	31	-	19,248	294,202
2114	294,202	-	-	22	-	20,593	314,773
2115	314,773	-	-	16	-	22,034	336,790
2116	336,790	-	-	12	-	23,575	360,354
2117	360,354	-	-	9	-	25,224	385,569



## Appendix E: GASB 67 Fiduciary Net Position Projection

**Table E-2: Actuarial Present Value of Projected Benefit Payments (in thousands)**

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments		
					Funded Payments at 7.00%	Unfunded Payments at 3.87%	Using Single Discount Rate of 7.00%
2018	\$ 25,918,361	\$ 1,554,509	\$ 1,554,509	\$ -	\$ 1,502,800	\$ -	\$ 1,502,800
2019	27,018,567	1,628,107	1,628,107	-	1,470,982	-	1,470,982
2020	28,118,620	1,702,794	1,702,794	-	1,437,814	-	1,437,814
2021	29,200,221	1,777,205	1,777,205	-	1,402,473	-	1,402,473
2022	30,264,414	1,854,424	1,854,424	-	1,367,672	-	1,367,672
2023	31,307,842	1,938,802	1,938,802	-	1,336,358	-	1,336,358
2024	32,320,343	2,030,135	2,030,135	-	1,307,767	-	1,307,767
2025	33,292,183	2,122,895	2,122,895	-	1,278,057	-	1,278,057
2026	34,208,031	2,214,895	2,214,895	-	1,246,209	-	1,246,209
2027	35,064,725	2,306,289	2,306,289	-	1,212,740	-	1,212,740
2028	35,858,936	2,396,111	2,396,111	-	1,177,544	-	1,177,544
2029	36,540,950	2,484,278	2,484,278	-	1,141,003	-	1,141,003
2030	37,072,129	2,570,502	2,570,502	-	1,103,369	-	1,103,369
2031	37,455,449	2,653,723	2,653,723	-	1,064,571	-	1,064,571
2032	37,717,402	2,732,166	2,732,166	-	1,024,336	-	1,024,336
2033	37,891,562	2,653,424	2,653,424	-	929,733	-	929,733
2034	38,134,862	2,726,251	2,726,251	-	892,758	-	892,758
2035	38,295,696	2,797,029	2,797,029	-	856,014	-	856,014
2036	38,360,104	2,864,929	2,864,929	-	819,434	-	819,434
2037	38,324,751	2,930,343	2,930,343	-	783,312	-	783,312
2038	38,196,429	2,990,861	2,990,861	-	747,186	-	747,186
2039	37,974,432	3,045,642	3,045,642	-	711,095	-	711,095
2040	37,659,216	3,094,148	3,094,148	-	675,159	-	675,159
2041	37,251,599	3,139,737	3,139,737	-	640,287	-	640,287
2042	36,748,498	3,181,840	3,181,840	-	606,423	-	606,423
2043	36,147,118	3,218,431	3,218,431	-	573,268	-	573,268
2044	35,446,922	3,247,716	3,247,716	-	540,640	-	540,640
2045	34,649,516	3,269,142	3,269,142	-	508,604	-	508,604
2046	33,757,211	3,281,180	3,281,180	-	477,081	-	477,081
2047	32,774,303	3,275,243	3,275,243	-	445,064	-	445,064
2048	31,715,755	3,246,823	3,246,823	-	412,338	-	412,338
2049	30,603,348	3,200,585	3,200,585	-	379,875	-	379,875
2050	29,454,594	3,143,277	3,143,277	-	348,666	-	348,666
2051	28,280,003	3,077,371	3,077,371	-	319,024	-	319,024
2052	27,087,756	3,003,688	3,003,688	-	291,014	-	291,014
2053	25,885,485	2,923,533	2,923,533	-	264,718	-	264,718
2054	24,679,830	2,837,885	2,837,885	-	240,152	-	240,152
2055	23,476,727	2,746,808	2,746,808	-	217,238	-	217,238
2056	22,282,368	2,651,594	2,651,594	-	195,989	-	195,989
2057	21,101,940	2,553,212	2,553,212	-	176,371	-	176,371
2058	19,939,933	2,452,602	2,452,602	-	158,338	-	158,338
2059	18,800,130	2,350,735	2,350,735	-	141,833	-	141,833
2060	17,685,517	2,248,039	2,248,039	-	126,763	-	126,763
2061	16,598,821	2,145,394	2,145,394	-	113,061	-	113,061
2062	15,542,021	2,043,189	2,043,189	-	100,631	-	100,631
2063	14,516,814	1,941,748	1,941,748	-	89,378	-	89,378
2064	13,524,667	1,841,373	1,841,373	-	79,213	-	79,213
2065	12,566,824	1,742,322	1,742,322	-	70,049	-	70,049
2066	11,644,334	1,644,808	1,644,808	-	61,802	-	61,802
2067	10,758,101	1,549,023	1,549,023	-	54,395	-	54,395



## Appendix E: GASB 67 Fiduciary Net Position Projection

**Table E-2: Actuarial Present Value of Projected Benefit Payments (in thousands) (continued)**

Calendar Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments		
					Funded Payments at 7.20%	Unfunded Payments at 3.87%	Using Single Discount Rate of 7.20%
2068	\$ 9,908,886	\$ 1,455,147	\$ 1,455,147	\$ -	\$ 47,756	\$ -	\$ 47,756
2069	9,097,315	1,363,348	1,363,348	-	41,816	-	41,816
2070	8,323,883	1,273,765	1,273,765	-	36,512	-	36,512
2071	7,588,969	1,186,549	1,186,549	-	31,787	-	31,787
2072	6,892,825	1,101,840	1,101,840	-	27,587	-	27,587
2073	6,235,573	1,019,769	1,019,769	-	23,862	-	23,862
2074	5,617,207	940,461	940,461	-	20,566	-	20,566
2075	5,037,591	864,036	864,036	-	17,659	-	17,659
2076	4,496,456	790,602	790,602	-	15,101	-	15,101
2077	3,993,403	720,257	720,257	-	12,857	-	12,857
2078	3,527,901	653,091	653,091	-	10,896	-	10,896
2079	3,099,292	589,189	589,189	-	9,187	-	9,187
2080	2,706,781	528,635	528,635	-	7,703	-	7,703
2081	2,349,431	471,509	471,509	-	6,421	-	6,421
2082	2,026,158	417,883	417,883	-	5,319	-	5,319
2083	1,735,728	367,823	367,823	-	4,375	-	4,375
2084	1,476,750	321,380	321,380	-	3,573	-	3,573
2085	1,247,685	278,586	278,586	-	2,894	-	2,894
2086	1,046,851	239,446	239,446	-	2,325	-	2,325
2087	872,445	203,933	203,933	-	1,851	-	1,851
2088	722,567	171,985	171,985	-	1,459	-	1,459
2089	595,244	143,511	143,511	-	1,137	-	1,137
2090	488,462	118,387	118,387	-	877	-	877
2091	400,181	96,461	96,461	-	668	-	668
2092	328,414	77,555	77,555	-	502	-	502
2093	271,179	61,468	61,468	-	372	-	372
2094	226,579	47,978	47,978	-	271	-	271
2095	192,811	36,843	36,843	-	195	-	195
2096	168,197	27,807	27,807	-	137	-	137
2097	151,207	20,608	20,608	-	95	-	95
2098	140,475	14,984	14,984	-	65	-	65
2099	134,808	10,681	10,681	-	43	-	43
2100	133,197	7,459	7,459	-	28	-	28
2101	134,804	5,103	5,103	-	18	-	18
2102	138,962	3,420	3,420	-	11	-	11
2103	145,151	2,248	2,248	-	7	-	7
2104	152,987	1,451	1,451	-	4	-	4
2105	162,195	923	923	-	2	-	2
2106	172,593	582	582	-	1	-	1
2107	184,073	365	365	-	1	-	1
2108	196,581	230	230	-	1	-	1
2109	210,103	147	147	-	-	-	-
2110	224,658	96	96	-	-	-	-
2111	240,285	64	64	-	-	-	-
2112	257,038	44	44	-	-	-	-
2113	274,985	31	31	-	-	-	-
2114	294,202	22	22	-	-	-	-
2115	314,773	16	16	-	-	-	-
2116	336,790	12	12	-	-	-	-
2117	360,354	9	9	-	-	-	-



## Appendix F: Additional Disclosures

Table F-1 illustrates the sensitivity of certain valuation results to changes in the discount rate on a market value of assets basis. Table F-2 summarizes historical actuarial value and market value asset returns. Table F-3 provides an estimate of future market value of asset returns based on the current portfolio structure and summarized in the "TSERS Asset-Liability and Investment Strategy Project" report dated April 19, 2016.

Section 6(c) of Session Law 2016-108 requires that the actuarial valuation report provide the valuation results using a 30-year treasury rate as of December 31 of the year of the valuation as the discount rate. This is 2.74% at December 31, 2017 and has been used as the lower bound of the sensitivity analysis presented. The range between the current discount rate (7.00%) and the 30-year treasury rate (2.74%) was used to establish an upper bound for sensitivity analysis (11.26%). The remaining rates illustrated represent mid-points between the selected rates. Table F-3 illustrates our best estimate of the plausibility of such rates. The lower bound of 2.74% falls below the 5<sup>th</sup> percentile of estimated future 30-year returns while the upper bound of 11.26% falls between the 75<sup>th</sup> and 95<sup>th</sup> percentiles of estimated future 30-year returns.

**Table F-1: Sensitivity of Valuation Results as of December 31, 2017**

Discount Rate	2.74%	4.87%	7.00%	9.27%	11.26%
Market Value of Assets	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041	\$ 25,918,361,041
Actuarial Accrued Liability	\$ 47,371,717,458	\$ 35,529,194,403	\$ 27,745,867,630	\$ 22,435,666,297	\$ 18,687,478,633
Unfunded Accrued Liability (UAL)	\$ 21,453,356,417	\$ 9,610,833,362	\$ 1,827,506,589	\$ (3,482,694,744)	\$ (7,230,882,408)
Funded Ratio	54.7%	72.9%	93.4%	115.5%	138.7%
20-Year Amortization of UAL (as % of general local revenue)	\$ 1,419,552,982 8.3%	\$ 788,203,487 4.6%	\$ 182,462,792 1.1%	N/A	N/A

**Table F-2: Historical Asset Returns**

Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return	Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return	Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
1998	9.93%	16.64%	2005	8.58%	7.00%	2012	6.51%	11.79%
1999	15.61%	9.99%	2006	9.19%	11.41%	2013	7.61%	12.21%
2000	12.27%	2.65%	2007	9.03%	8.36%	2014	7.32%	6.19%
2001	8.98%	-1.69%	2008	2.97%	-19.47%	2015	5.87%	0.34%
2002	6.13%	-4.44%	2009	4.92%	14.94%	2016	5.34%	6.22%
2003	8.52%	18.63%	2010	6.10%	11.53%	2017	6.59%	13.47%
2004	9.00%	10.77%	2011	5.33%	2.14%			

The average investment return recognized for the purposes of determining the annual change in contribution each year is the Actuarial Value of Asset Return. The Actuarial Value of Assets smooths investment gains and losses over a five-year period and is used to reduce volatility that investment gains and losses can have on required contributions and the funded status of the Plan.



## Appendix F: Additional Disclosures

**Table F-3: Estimate of Future Asset Returns**

Horizon	95% Chance (19 out of every 20 scenarios)	75% Chance (3 out of every 4 scenarios)	50% Chance (1 out of every 2 scenarios)	25% Chance (1 out of every 4 scenarios)	5% Chance (1 out of every 20 scenarios)
10 Years (2025)	0.2%	4.0%	5.9%	8.0%	11.5%
20 Years (2035)	2.2%	4.8%	6.7%	8.5%	11.8%
30 Years (2045)	3.1%	5.3%	7.1%	8.7%	12.0%

Other than the discount rate, these results are based on the other economic and demographic assumptions presented in the report. For purposes of simplicity in this disclosure, no adjustments to the valuation assumption for inflation were reflected in the sensitivities above. The statute also requires that the actuarial valuation report show the results using a market value of assets basis. The “funded ratio” and “unfunded accrued liability” in Table F-1 are based upon the market value of assets. In order to alleviate volatility, future employer contributions are determined based on the actuarial value of assets, which smooths market value returns.

None of the liability amounts shown are intended to imply the amount that might represent the cost of any settlement of the plan’s obligations. The various caveats, constraints, and discussions presented earlier in the report apply to these results as well.



## Appendix G: Data for Section 2 Graphs

The tables below provide the numbers associated with the graphs in Section 2 of this report.

**Graph 1: Active Members**

	Active Member Count	Reported Compensation
2013	123,455	\$ 5,241,857,680
2014	123,184	5,331,287,565
2015	124,974	5,541,839,498
2016	126,647	5,716,583,136
2017	128,779	5,944,507,039

**Graph 2: Retired Members and Survivors of Deceased Members**

	Retired and Survivors of Deceased Member Count	Retirement Allowance
2013	57,405	\$ 1,039,032,788
2014	60,408	1,108,688,628
2015	63,110	1,181,580,927
2016	65,930	1,251,874,605
2017	68,766	1,324,257,015

**Graph 3: Market Value of Assets and Asset Returns**

	Market Value of Assets	Asset Return
2013	21,784,255,100	12.21%
2014	22,744,942,754	6.19%
2015	22,403,836,820	0.34%
2016	23,308,817,567	6.22%
2017	25,918,361,041	13.47%



## Appendix G: Data for Section 2 Graphs

**Graph 5: Cost-of-Living Increase and CPI-U History**

	Total Allowance Increase	National CPI-U
1987	4.80%	4.40%
1988	5.40%	4.40%
1989	6.70%	4.60%
1990	0.00%	6.10%
1991	5.20%	3.10%
1992	1.60%	2.90%
1993	3.40%	2.70%
1994	3.30%	2.70%
1995	4.40%	2.50%
1996	6.30%	3.30%
1997	3.10%	1.70%
1998	1.00%	1.60%
1999	4.40%	2.70%
2000	3.70%	3.40%
2001	2.00%	1.60%
2002	3.50%	2.40%
2003	0.00%	1.90%
2004	2.50%	3.30%
2005	2.80%	3.40%
2006	2.20%	2.50%
2007	2.20%	4.10%
2008	0.10%	0.10%
2009	0.00%	2.70%
2010	0.00%	1.50%
2011	0.00%	3.00%
2012	0.00%	1.70%
2013	0.00%	1.50%
2014	0.625%	0.80%
2015	0.105%	0.70%
2016	0.00%	2.10%
2017	0.00%	2.10%

\* Allowance increases are effective at July 1 the following year





## Appendix G: Data for Section 2 Graphs

**Graph 6: Actuarial Value and Market Value of Assets**

	Actuarial Value of Assets	Market Value of Assets
2013	21,498,147,032	21,784,255,100
2014	22,682,380,725	22,744,942,754
2015	23,649,311,273	22,403,836,820
2016	24,424,927,820	23,308,817,567
2017	25,520,733,159	25,918,361,041

**Graph 7: Asset Returns**

	Actuarial Value Value of Assets	Market Value Asset Return
2013	7.61%	12.21%
2014	7.32%	6.19%
2015	5.87%	0.34%
2016	5.34%	6.22%
2017	6.59%	13.47%

**Graph 8: Actuarial Accrued Liability**

	Liability for Active Members	Liability for Deferred Members	Liability for Retired Members	Total Liability
2013	\$ 10,509,988,484	\$ 1,213,557,282	\$ 9,814,267,515	\$ 21,537,813,281
2014	10,793,750,356	1,345,626,216	10,578,753,552	22,718,130,124
2015	11,098,691,456	1,459,269,218	11,802,159,195	24,360,119,869
2016	11,498,250,153	1,580,234,469	12,575,121,366	25,653,605,988
2017	12,498,471,452	1,689,255,707	13,558,140,471	27,745,867,630



## Appendix G: Data for Section 2 Graphs

**Graph 9: Present Value of Future Benefits, Actuarial Accrued Liability and Actuarial Value of Assets**

	Present Value of Future Benefits	Actuarial Accrued Liability	Actuarial Value of Assets
2013	\$ 27,254,069,412	\$ 21,537,813,281	\$ 21,498,147,032
2014	28,456,762,124	22,718,130,124	22,682,380,725
2015	29,380,961,747	24,360,119,869	23,649,311,273
2016	30,905,961,233	25,653,605,988	24,424,927,820
2017	33,709,752,410	27,745,867,630	25,520,733,159

**Graph 10: Funded Ratios**

	Funded Ratio (Actuarial Basis)	Funded Ratio (Market Value Basis)
2013	99.8%	101.1%
2014	99.8%	100.1%
2015	97.1%	92.0%
2016	95.2%	90.9%
2017	92.0%	93.4%

**Graph 11: Actuarially Determined Employer Contribution Rates**

Fiscal Year	General Employees and Firefighters	Law Enforcement Officers
2016	6.67%	7.15%
2017**	5.50%	7.12%
2018	6.25%	7.84%
2019	7.40%	8.99%
2020*	8.56%	10.22%

\* Subject to the impact of future legislative changes effective during that fiscal year

\*\* Includes impact of the experience study



## Appendix G: Data for Section 2 Graphs

**Graph 12: Projected Actuarially Determined Employer Contribution Rates**

	<b>Alternate #1 (0.0% 2018 Return)</b>	<b>Baseline Projection</b>	<b>Alternate #2 (14.0% 2018 Return)</b>
2018	6.25%	6.25%	6.25%
2019	7.40%	7.40%	7.40%
2020	8.56%	8.56%	8.56%
2021	8.56%	9.58%	8.88%
2022	10.27%	10.25%	8.71%
2023	11.79%	9.85%	7.49%
2024	12.20%	9.38%	6.19%
2025	12.56%	9.28%	6.00%
2026	13.24%	9.20%	6.00%
2027	13.07%	9.12%	6.00%
2028	12.90%	9.04%	6.00%
2029	12.73%	8.41%	6.00%
2030	12.00%	7.43%	6.00%
2031	10.93%	6.27%	6.00%
2032	9.68%	6.00%	6.00%
2033	8.62%	6.00%	6.00%
2034	7.91%	6.00%	6.00%
2035	7.27%	6.00%	6.00%

**Graph 12: Projected Funded Ratio**

	<b>Alternate #1 (0.0% 2018 Return)</b>	<b>Baseline Projection</b>	<b>Alternate #2 (14.0% 2018 Return)</b>
2017	91.98%	91.98%	91.98%
2018	90.58%	91.86%	93.14%
2019	89.19%	92.07%	94.96%
2020	89.01%	93.40%	97.79%
2021	89.06%	94.86%	100.66%
2022	88.73%	95.73%	102.75%
2023	89.93%	96.53%	103.14%
2024	91.26%	97.28%	103.36%
2025	92.65%	98.02%	103.57%
2026	94.01%	98.73%	103.79%
2027	95.35%	99.43%	104.01%
2028	96.66%	100.12%	104.23%
2029	97.84%	100.68%	104.44%
2030	98.83%	101.05%	104.66%
2031	99.57%	101.19%	104.88%
2032	100.10%	101.32%	105.11%



# North Carolina Local Governmental Employees' Retirement System

## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

The table below provides the total contribution rates payable for the year beginning July 1, 2019 by all participating employers.

Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
	75750	Clyde, Town of		8.89%		0.14%		
	70505	Eastern Band of Cherokee Indians		8.89%		0.14%		
	72265	Piedmont Triad Airport Authority		8.89%		0.14%		
	72593	Seagrove, Town		8.89%		0.14%		
	72657	Sparta, Town of		8.89%		0.14%		
90001	73190	Yancey County	8.09%	8.89%	0.09%	0.14%		
90002		Yancey Soil & Water Cons	8.00%					
90011	70330	Burnsville, Town of	8.08%	8.89%	0.08%	0.14%		
90092		Martin-Tyrrell-Washington Dist Health Dept	8.06%		0.06%			
90096		Albemarle Regional Health Services	8.07%		0.07%			
90098		Toe River Health District	8.05%		0.05%			
90099		Appalachian District Health Dept	8.03%		0.03%			
90101	70020	Alamance County	8.06%	8.89%	0.06%	0.14%		
90111	70320	Burlington, City of	8.07%	8.89%	0.07%	0.14%		
90114		Mebane, City of	18.50%	19.39%		0.14%	4,953,686	6/30/2026
90117		Alamance Municipal A.B.C. Board	8.23%		0.23%			
90121	71080	Graham, City of	8.00%	8.89%		0.14%		
90131	70880	Elon, Town of	8.04%	8.89%	0.04%	0.14%		
90141	71245	Town of Haw River	8.00%	8.89%		0.14%		
90151		Alamance, Village of	8.00%					
90161		Green Level, Town of	8.00%					
90201	70032	Alexander County	8.07%	8.89%	0.07%	0.14%		
90203		Alexander County Health Dept	8.04%		0.04%			
90205		Alexander County Public Library	8.09%		0.09%			
90206		Alexander County Dept of S S	8.05%		0.05%			
90211	72775	Taylorsville, Town of	8.00%	8.89%		0.14%		
90301	70035	Alleghany County	8.07%	8.89%	0.07%	0.14%		
90305		Northwestern Regional Library	8.10%		0.10%			
90307		Sparta A.B.C. Board	8.53%				2,585	12/31/2028
90401	70040	Anson County	8.10%	8.89%	0.10%	0.14%		
90411	72930	Wadesboro, Town of	8.07%	8.89%	0.07%	0.14%		
90413		Wadesboro Housing Authority	8.07%		0.07%			
90417		Wadesboro A.B.C. Board	8.13%		0.13%			
90421	71584	Lilesville, Town of	8.04%	8.89%	0.04%	0.14%		
90431	72345	Polkton, Town of	8.16%	8.89%	0.16%	0.14%		



## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
90441		Peachland, Town of	8.00%					
90451		Ansonville, Town of	8.00%					
90461		Morven, Town of	12.48%				1,745	6/30/2019
90501	70065	Ashe County	8.07%	8.89%	0.07%	0.14%		
90507		West Jefferson A.B.C. Board	11.22%				28,767	6/30/2028
90511	71447	Jefferson, Town of	8.00%	8.89%		0.14%		
90521	73025	West Jefferson, Town of	8.00%	8.89%		0.14%		
90601	70090	Avery County	8.12%	8.89%	0.12%	0.14%		
90602		Avery County Fire Commission	14.25%				241,481	12/31/2038
90605		Avery-Mitchell-Yancey Reg Library	8.14%		0.14%			
90611	70110	Banner Elk, Town of	8.00%	8.89%		0.14%		
90617		High Country A.B. C. Board	8.06%		0.06%			
90621	72032	Newland, Town of	8.00%	8.89%		0.14%		
90631	70146	Beech Mountain, Town of	8.00%	8.89%		0.14%		
90641	70860	Elk Park, Town of	8.00%	8.89%		0.14%		
90651	72724	Sugar Mountain, Town of	15.14%	16.03%		0.14%	284,134	6/30/2024
90701	70130	Beaufort County	8.05%	8.89%	0.05%	0.14%		
90704		Beaufort County A.B.C. Board	8.24%		0.24%			
90705		B.H.M. Regional Library	8.09%		0.09%			
90709		Mideast Commission	8.05%		0.05%			
90711	72990	Washington, City of	8.07%	8.89%	0.07%	0.14%		
90721	70085	Aurora, Town of	8.13%	8.89%	0.13%	0.14%		
90731	70147	Belhaven, Town of	8.00%	8.89%		0.14%		
90741		Washington Park, Town of	8.00%					
90751	70525	Chocowinity, Town of	8.00%	8.89%		0.14%		
90801	70180	Bertie County	8.00%	8.89%		0.14%		
90804		Bertie County A.B.C. Board	8.12%		0.12%			
90805		Albemarle Regional Library	8.15%		0.15%			
90808		Bertie-Martin Regional Jail Comm	8.10%		0.10%			
90811	70082	Aulander, Town of	8.03%	8.89%	0.03%	0.14%		
90812	73122	Windsor, Town of	8.00%	8.89%		0.14%		
90813	70575	Colerain, Town of	8.19%	8.89%	0.19%	0.14%		
90861	71556	Lewiston Woodville, Town of	9.04%	9.93%		0.14%	3,165	6/30/2024
90901	70210	Bladen County	8.06%	8.89%	0.06%	0.14%		
90911	70850	Elizabethtown, Town of	8.08%	8.89%	0.08%	0.14%		



# North Carolina Local Governmental Employees' Retirement System

## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
90917		Elizabeth A.B.C. Board	8.00%					
90918		South Eastern Economic Development Comm	8.02%		0.02%			
90921	73050	White Lake, Town of	8.10%	8.89%	0.10%	0.14%		
90931	70537	Clarkton, Town pf	8.05%	8.89%	0.05%	0.14%		
90941	70215	Bladenboro, Town of	8.00%	8.89%		0.14%		
91001	70280	Brunswick County	8.06%	8.89%	0.06%	0.14%		
91002	71540	Leland, Town of	8.00%	8.89%		0.14%		
91003		Brunswick Co Health Dept	8.04%		0.04%			
91004		Brunswick County A.B.C. Board	8.00%					
91006		Brunswick Co Dept of Social Services	8.04%		0.04%			
91007		Calabash A.B.C. Board	8.00%					
91008		Cape Fear Council of Governments	8.00%					
91009		Brunswick County Tourism Authority	9.01%				9,105	6/30/2025
91010		Calabash, Town of	8.00%					
91011	72650	Southport, City of	8.09%	8.89%	0.09%	0.14%		
91012	72076	Northwest, City of	8.00%	8.89%		0.14%		
91013		Southeast Brunswick Sanitary District	14.18%		0.37%		202,644	9/30/2039
91014	71375	Holden Beach, Town of	8.00%	8.89%		0.14%		
91015		Cape Fear Regional Jetport	8.00%					
91017		Southport A.B.C. Board	8.35%		0.35%			
91020		Belville, Town of	8.64%				4,458	6/30/2022
91021	71630	Oak Island, Town of	8.08%	8.89%	0.08%	0.14%		
91024		Carolina Shores Town of	8.00%					
91026		Navassa, Town of	15.27%	16.16%		0.14%	279,763	6/30/2035
91027		Oak Island A.B.C. Bd	8.13%		0.13%			
91032		St James, Town of	8.00%					
91041	72723	Sunset Beach, Town of	8.05%	8.89%	0.05%	0.14%		
91042		Brunswick Regional Water and Sewer H2GO	8.00%					
91047		Sunset Beach A.B.C. Board	20.44%		0.30%		15,761	6/30/2019
91051	70405	Caswell Beach, Town of	8.00%	8.89%		0.14%		
91057		Shallotte A.B.C. Board	8.35%		0.35%			
91061	72135	Ocean Isle Beach, Town of	8.07%	8.89%	0.07%	0.14%		
91067		Ocean Isle Beach A.B.C.	8.11%		0.11%			
91071	70225	Boiling Spring Lakes, City of	8.08%	8.89%	0.08%	0.14%		
91077		Boiling Spring Lakes A.B.C. Board	8.00%					



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
91081	72597	Shallotte, Town of	8.00%	8.89%		0.14%		
91091	70107	Bald Head Island, Village of	8.06%	8.89%	0.06%	0.14%		
91101	70290	Buncombe County	8.04%	8.89%	0.04%	0.14%		
91102		Land-of-Sky Regional Council	8.06%		0.06%			
91104		Woodfin A.B.C. Commission	9.51%				9,897	6/30/2025
91107		Western NC Regional Air Quality	8.04%		0.04%			
91108		Metro Sewerage Dist of Buncombe County	8.07%		0.07%			
91109		Woodfin Sanitary Water and Sewer Dist	8.07%		0.07%			
91111	70190	Biltmore Forest, Town of	8.00%	8.89%		0.14%		
91120		West Buncombe Fire Dept	8.00%					
91121	70070	Asheville, City of	8.00%	8.89%		0.14%		
91127	70072	Asheville A.B.C. Board	8.09%	8.89%	0.09%	0.14%		
91128	70074	Asheville Regional Airport Authority	8.06%	8.89%	0.06%	0.14%		
91138		Skyland Vol Fire Dept	8.00%					
91141	73016	Weaverville, Town of	8.13%	8.89%	0.13%	0.14%		
91147		Weaverville A.B.C. Board	8.93%				6,204	6/30/2022
91151	70200	Black Mountain, Town of	8.04%	8.89%	0.04%	0.14%		
91154		Black Mountain A.B.C. Board	8.11%		0.11%			
91161	71820	Montreat, Town of	8.07%	8.89%	0.07%	0.14%		
91171	73160	Woodfin, Town of	8.00%	8.89%		0.14%		
91201	70310	Burke County	8.07%	8.89%	0.07%	0.14%		
91202		Burke-Catawba Dist Confinment	8.00%				3,985	6/30/2018
91203		Burke Co Health Dept	8.06%		0.06%			
91206		Burke Co Dept of Social Services	8.05%		0.05%			
91208		Burke County Tourism Dev. Authority	8.00%					
91211	72883	Valdese, Town of	8.09%	8.89%	0.09%	0.14%		
91213		Valdese Housing Authority	8.00%					
91214		Rutherford College, Town of	8.00%					
91217	71880	Morganton A.B.C. Board	8.41%	8.89%	0.41%	0.14%		
91221	70745	Drexel, Town of	8.07%	8.89%	0.07%	0.14%		
91231	71870	Morganton, City of	8.00%	8.89%		0.14%		
91233		Morganton Housing Authority	8.05%		0.05%			
91241	71065	Glen Alpine, Town of	8.11%	8.89%	0.11%	0.14%		
91251		Hildebran, Town of	8.00%					
91261		Connelly Springs, Town of	8.00%				620	6/30/2018



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
91301	70340	Cabarrus County	8.05%	8.89%	0.05%	0.14%		
91302		Water & Sewer Auth of Cabarrus County	8.03%		0.03%			
91306		Cabarrus Co Public Health Auth	8.04%		0.04%			
91308		Cabarrus County Tourism Authority	8.67%				53,300	6/30/2027
91311	70590	Concord, City of	8.05%	8.89%	0.05%	0.14%		
91317		Concord A.B.C. Board	8.14%		0.14%			
91321		Mount Pleasant, Town of	14.14%				64,155	6/30/2021
91327		Mt Pleasant A.B.C. Board	8.22%		0.22%			
91331	71468	Kannapolis, City of	8.05%	8.89%	0.05%	0.14%		
91341		Midland, Town of	8.00%					
91401	70350	Caldwell County	8.06%	8.89%	0.06%	0.14%		
91411	71090	Granite Falls, Town of	8.06%	8.89%	0.06%	0.14%		
91417		Granite Falls A.B.C. Board	8.18%		0.18%			
91421		Sawmills, Town of	8.00%					
91423		Lenoir Housing Authority	8.05%		0.05%			
91431	71395	Hudson, Town of	8.00%	8.89%		0.14%		
91441		Harrisburg, Town of	8.00%					
91451	71552	Lenoir, City of	8.18%	8.89%	0.18%	0.14%		
91457		Lenoir A.B.C. Board	17.60%				58,251	6/30/2021
91461		Cajah's Mountain, Town of	8.00%					
91501	70357	Camden County	8.09%	8.89%	0.09%	0.14%		
91504		Camden County A.B.C. Board	8.22%		0.22%			
91601	70380	Carteret County	8.08%	8.89%	0.08%	0.14%		
91604	70385	Carteret County A.B.C. Board	8.15%	8.89%	0.15%	0.14%		
91608		Western Carteret Interlocal Cooperation Agency	8.00%					
91611	71860	Morehead City, Town of	8.05%	8.89%	0.05%	0.14%		
91621	72035	Newport, Town of	8.00%	8.89%		0.14%		
91631	70145	Beaufort, Town of	8.06%	8.89%	0.06%	0.14%		
91633		Beaufort Housing Authority	8.00%					
91641	72290	Pine Knoll Shores, Town of	8.05%	8.89%	0.05%	0.14%		
91651	70890	Emerald Isle, Town of	8.00%	8.89%		0.14%		
91661	71405	Indian Beach, Town of	8.00%	8.89%		0.14%		
91671	70365	Cape Carteret, Town of	8.05%	8.89%	0.05%	0.14%		
91681	70080	Atlantic Beach, Town of	14.40%	15.12%	0.17%	0.14%	1,190,081	6/30/2025
91691		Cedar Point, Town of	8.00%					





## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

The table below provides the total contribution rates payable for the year beginning July 1, 2019 by all participating employers.

Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
91701	70415	Caswell County	8.07%	8.89%	0.07%	0.14%		
91704		Caswell County A.B.C. Board	8.16%		0.16%			
91706		Caswell Co Dept of Social Services	8.09%		0.09%			
91719	73192	Yanceyville, Town of	8.04%	8.89%	0.04%	0.14%		
91801	70430	Catawba County	8.05%	8.89%	0.05%	0.14%		
91804	70440	Catawba County A.B.C. Board	8.22%	8.89%	0.22%	0.14%		
91811	71330	Hickory, City of	8.06%	8.89%	0.06%	0.14%		
91812		Hickory Conover Tourism Dev Auth	8.00%					
91813		Hickory Public Housing Authority	8.04%		0.04%			
91818		Western Piedmont Council of Gvmts	8.00%				137,726	6/30/2018
91819		Western Piedmont Regional Transit Authority	8.31%		0.31%			
91821	70535	Claremont, City of	8.06%	8.89%	0.06%	0.14%		
91831	71700	Maiden, Town of	8.05%	8.89%	0.05%	0.14%		
91841	71640	Longview, Town of	8.06%	8.89%	0.06%	0.14%		
91851	70610	Conover, Town of	8.09%	8.89%	0.09%	0.14%		
91861	70270	Brookford, Town of	8.00%	8.89%		0.14%		
91871	72040	Newton, City of	8.07%	8.89%	0.07%	0.14%		
91881	70441	Catawba, Town of	8.00%	8.89%		0.14%		
91901	70490	Chatham County	8.05%	8.89%	0.05%	0.14%		
91903		Chatham Co Housing Auth	8.00%					
91904		Chatham County A.B.C. Board	8.00%					
91908		Goldston-Gulf Sanitary District	8.00%					
91911	72625	Siler City, Town of	8.07%	8.89%	0.07%	0.14%		
91917		Siler City A.B.C. Board	8.08%		0.08%			
91921	72330	Pittsboro, Town of	8.06%	8.89%	0.06%	0.14%		
92001	70500	Cherokee County	8.10%	8.89%	0.10%	0.14%		
92005		Nantahala Regional Library	8.11%		0.11%			
92011	71975	Murphy, Town of	8.15%	8.89%	0.15%	0.14%		
92017		Murphy A.B.C. Board	8.05%		0.05%			
92021	70036	Andrews, Town of	8.00%	8.89%		0.14%		
92101	70530	Chowan County	8.08%	8.89%	0.08%	0.14%		
92104		Chowan County A.B.C. Board	8.16%		0.16%			
92109		Albemarle Regional Planning & Development Comm	8.04%		0.04%			
92111	70817	Edenton, Town of	8.08%	8.89%	0.08%	0.14%		
92113		New Edenton Housing Auth	8.16%		0.16%			



# North Carolina Local Governmental Employees' Retirement System

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
92201	70538	Clay County	8.07%	8.89%	0.07%	0.14%		
92214		Clay County A.B.C. Board	8.00%					
92301	70550	Cleveland County	8.06%	8.89%	0.06%	0.14%		
92302		Cleveland County Water	8.00%					
92311	72610	Shelby, City of	8.06%	8.89%	0.06%	0.14%		
92317		Shelby A.B.C. Board	8.18%		0.18%			
92321	71490	Kings Mountain, City of	8.00%	8.89%		0.14%		
92327		Kings Mountain A.B.C. Board	8.23%		0.23%			
92331	70230	Boiling Springs, Town of	8.12%	8.89%	0.12%	0.14%		
92341	71532	Lawndale, Town of	8.00%	8.89%		0.14%		
92351	71178	Grover, Town of	10.06%	10.86%	0.09%	0.14%	7,091	9/30/2020
92401	70580	Columbus County	8.10%	8.89%	0.10%	0.14%		
92403		Whiteville Housing Authority	8.00%					
92411	73060	Whiteville, City of	8.07%	8.89%	0.07%	0.14%		
92417		Whiteville A.B.C. Board	8.02%		0.02%			
92421		Brunswick, Town of	8.00%					
92427		Lake Waccamaw A.B.C. Board	8.23%		0.23%			
92431	70908	Fair Bluff, Town of	8.00%	8.89%		0.14%		
92441	70450	Chadbourn, Town of	8.00%	8.89%		0.14%		
92444		West Columbus A.B.C. Board	8.00%					
92451	72760	Tabor City, Town of	8.00%	8.89%		0.14%		
92461	71519	Lake Waccamaw, Town of	8.00%	8.89%		0.14%		
92501	70650	Craven County	8.07%	8.89%	0.07%	0.14%		
92502		First Craven Sanitary Dist	8.00%					
92504		Craven Co A.B.C. Bd	8.14%		0.14%			
92505		Craveb-Pamlico-Carteret Regional Library	8.16%		0.16%			
92506		Coastal Carolina Regional Airport	8.25%		0.25%			
92507		Neuse River Council of Governments	8.02%		0.02%			
92508		Coastal Regional Solid Waste Mngt Auth	8.07%		0.07%			
92511	72020	New Bern, City of	8.07%	8.89%	0.07%	0.14%		
92513		Trillium Health Resources	8.04%		0.04%			
92521	72810	Trent Woods, Town of	8.08%	8.89%	0.08%	0.14%		
92531	71240	Havelock, City of	8.05%	8.89%	0.05%	0.14%		
92541	72435	River Bend, Town of	8.00%	8.89%		0.14%		
92551	72910	Vanceboro, Town of	8.00%	8.89%		0.14%		



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
92561		Bridgeton, Town of	8.00%	8.89%		0.14%		
92571		Cove City, Town of	8.00%				1,311	6/30/2018
92601	70680	Cumberland County	8.06%	8.89%	0.06%	0.14%		
92602		Westarea Volunteer Fire Dept	8.00%					
92604	70685	Cumberland Co A.B.C. Board	8.10%	8.89%	0.10%	0.14%		
92607		Mid-Carolina Council Of Governments	8.04%		0.04%			
92611	70940	Fayetteville, City of	8.06%	8.89%	0.06%	0.14%		
92613		Fayetteville Metropolitan Housing Auth	8.07%		0.07%			
92614		Fayetteville Public Works Commission	13.23%				8,368,944	6/30/2022
92621	72715	Stedman, Town of	8.00%	8.89%		0.14%		
92631	71390	Hope Mills, Town of	8.06%	8.89%	0.06%	0.14%		
92641		Wade, Town of	8.00%					
92651		Linden, Town of	8.00%					
92661	72676	Spring Lake, Town of	14.72%	15.51%	0.10%	0.14%	1,499,827	6/30/2024
92671		Falcon Town of	14.42%				18,334	6/30/2026
92681		Eastover, Town of	8.32%		0.32%			
92701	70700	Currituck County	8.07%	8.89%	0.07%	0.14%		
92704		Currituck Co A.B.C. Board	8.00%					
92801	70720	Dare County	8.07%	8.89%	0.07%	0.14%		
92802		Dare County Tourism Board	8.04%		0.04%			
92804	70721	Dare County A.B.C. Board	8.10%	8.89%	0.10%	0.14%		
92811	71980	Nags Head, Town of	8.06%	8.89%	0.06%	0.14%		
92821	71480	Kill Devil Hills, Town of	8.07%	8.89%	0.07%	0.14%		
92831	71705	Manteo, Town of	8.20%	8.89%	0.20%	0.14%		
92841	72645	Southern Shores, Town of	8.03%	8.89%	0.03%	0.14%		
92851	71507	Kitty Hawk, Town of	8.12%	8.89%	0.12%	0.14%		
92861	70755	Duck, Town of	8.00%	8.89%		0.14%		
92901	70723	Davidson County	8.07%	8.89%	0.07%	0.14%		
92911	72780	Thomasville, City of	8.08%	8.89%	0.08%	0.14%		
92913		Thomasville Housing Authority	24.43%				235,277	6/30/2024
92914		Thomasville A.B.C. Board	8.00%					
92917		Lexington A.B.C. Board	8.24%		0.24%			
92921	70730	Denton, Town of	8.00%	8.89%		0.14%		
92931	71570	Lexington, City of	8.07%	8.89%	0.07%	0.14%		
92941		Midway, Town of	10.29%				29,483	6/30/2034



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93001	70725	Davie County	8.05%	8.89%	0.05%	0.14%		
93009		Davie Soil and Water Conservation Dist	8.00%					
93011	71790	Mocksville, Town of	8.06%	8.89%	0.06%	0.14%		
93021		Bermuda Run, Town of	8.00%					
93027		Cooleemee A.B.C. Board	8.00%					
93031	70624	Cooleemee, Town of	14.20%	15.09%		0.14%	76,736	9/30/2027
93101	70770	Duplin County	8.09%	8.89%	0.09%	0.14%		
93103		Duplin County Toursim Development Authority	8.00%					
93108		Eastpointe Human Services	8.05%		0.05%			
93111	70160	Beulaville, Town of	8.06%	8.89%	0.06%	0.14%		
93121	71469	Kenansville, Town of	8.07%	8.89%	0.07%	0.14%		
93127		Kenansville A.B.C. Board	8.00%					
93131	72981	Warsaw, Town of	8.17%	8.89%	0.17%	0.14%		
93137		Warsaw A.B.C. Board	8.00%					
93141	70920	Faison, Town of	8.12%	8.89%	0.12%	0.14%		
93151	72970	Wallace, Town of	8.00%	8.89%		0.14%		
93157		Wallace A.B.C. Bd	8.00%					
93161	72487	Rose Hill, Town of	8.09%	8.89%	0.09%	0.14%		
93171		Calypso, Town of	8.00%					
93181		Teachey, Town of	8.00%					
93191	71690	Magnolia, Town of	8.00%	8.89%		0.14%		
93201	70790	Durham County	8.05%	8.89%	0.05%	0.14%		
93204	70800	Durham County A.B.C. Board	8.07%	8.89%	0.07%	0.14%		
93209		Alliance Behavioral Healthcare	8.00%					
93211	70780	Durham, City of	8.00%	8.89%		0.14%		
93212		Durham Convention & Visitors Bureau	13.71%				623,828	6/30/2025
93219		Triangle J Council of Governments	8.04%		0.04%			
93301	70820	Edgecombe County	8.09%	8.89%	0.09%	0.14%		
93304		Edgecombe County A.B.C. Board	8.14%		0.14%			
93305		Edgecombe County Memorial Library	8.07%		0.07%			
93309		Upper Coastal Plain Council of Governements	8.08%		0.08%			
93311	72770	Tarboro, Town of	8.06%	8.89%	0.06%	0.14%		
93317		Tarboro Redevelopment Commission	8.06%		0.06%			
93321	72480	Rocky Mount, City of	8.05%	8.89%	0.05%	0.14%		
93323		Rocky Mount-Wilson Airport Authority	8.05%		0.05%			



# North Carolina Local Governmental Employees' Retirement System

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93331	72296	Pinetops, Town of	8.08%	8.89%	0.08%	0.14%		
93333		Rocky Mt Housing Authority	8.00%					
93341		Macclesfield, Town of	8.05%		0.05%			
93351	72351	Princeville, Town of	8.00%	8.89%		0.14%		
93401	70951	Forsyth County	8.00%	8.89%		0.14%		
93402		Airport Commission of Forsyth County	8.00%					
93406		Piedmont Triad Regional Council	8.13%		0.13%			
93411	73130	Winston-Salem, City of	8.00%	8.89%		0.14%		
93413		Winston-Salem Housing Authority	8.07%		0.07%			
93417	73140	Triad Municipal A.B.C. Board	8.13%	8.89%	0.13%	0.14%		
93421	71470	Kernersville, Town of	8.00%	8.89%		0.14%		
93431		Rural Hall, Town of	8.06%		0.06%			
93441		Clemmons, Village of	8.00%					
93442		Clemmons Fire Department	8.00%					
93451		Lewisville, Town of	8.00%					
93461		Walkertown, Town of	8.00%				586	6/30/2018
93471		Tobaccoville, Village of	8.00%					
93501	70960	Franklin County	8.09%	8.89%	0.09%	0.14%		
93511	70970	Franklinton, Town of	8.00%	8.89%		0.14%		
93517		Franklinton A.B.C Board	8.23%		0.23%			
93521	71650	Louisburg, Town of	8.08%	8.89%	0.08%	0.14%		
93527		Louisburg A.B.C. Board	8.23%		0.23%			
93531	70295	Bunn, Town of	8.00%	8.89%		0.14%		
93537		Bunn A.B.C. Board	8.00%					
93541	73200	Youngsville, Town of	8.00%	8.89%		0.14%		
93601	71030	Gaston County	8.05%	8.89%	0.05%	0.14%		
93602	72682	Stanley, Town of	8.07%	8.89%	0.07%	0.14%		
93604		Cramerton A.B.C. Board	8.00%					
93609		Partners Behavioral Health Management	8.04%		0.04%			
93610	71760	Mcadenville, Town of	8.03%	8.89%	0.03%	0.14%		
93611	71040	Gastonia, City of	8.00%	8.89%		0.14%		
93617		Gastonia A.B.C. Board	8.35%		0.35%			
93618		Gaston County Economic Dev Commission	18.07%				65,084	12/31/2022
93621	70150	Belmont, City of	8.00%	8.89%		0.14%		
93623		Belmont Housing Authority	8.00%				733	3/31/2018



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93631	70640	Cramerton, Town of	8.21%	8.89%	0.21%	0.14%	31,436	6/30/2023
93641	70520	Cherryville, City of	8.11%	8.89%	0.11%	0.14%		
93647		Cherryvil A.B.C. Board	21.21%					
93651	70705	Dallas, Town of	8.00%	8.89%		0.14%		
93661	71655	Lowell, City of	8.00%	8.89%		0.14%		
93671		Bessemer City, City of	8.18%	8.89%	0.18%	0.14%		
93681	72390	Ranlo, Town of	8.00%	8.89%		0.14%		
93691	71930	Mount Holly, City of	8.06%	8.89%	0.06%	0.14%		
93701	71050	Gates County	8.07%	8.89%	0.07%	0.14%		
93704	71052	Gates County A.B.C. Board	8.21%	8.89%	0.21%	0.14%		
93801	71085	Graham County	8.00%	8.89%		0.14%		
93803		Graham Co Health Dept	8.04%		0.04%			
93806		Graham County Dept of S S	8.07%		0.07%			
93821		Robbinsville, Town of	8.09%		0.09%			
93901	71110	Granville County	8.07%	8.89%	0.07%	0.14%		
93904		Granville Co A.B.C. Bd	8.18%		0.18%			
93906		Granville County Hospital	8.04%		0.04%			
93908		Granville-Vance Public Health	8.04%		0.04%			
93910		South Granville Water and Sewer Authority	8.16%		0.16%			
93911	72200	Oxford, City of	8.08%	8.89%	0.08%	0.14%		
93913		Oxford Housing Authority	8.06%		0.06%			
93914		Stovall, Town of	8.71%		0.71%			
93921	70660	Creedmoor, City of	8.00%	8.89%		0.14%		
93931		Butner, Town of	8.13%	8.89%	0.13%	0.14%		
94001	71130	Greene County	8.10%	8.89%	0.10%	0.14%		
94002		Maury Sanitary Land District	8.89%				1,111	3/31/2020
94004		Greene County A.B.C. Board	8.14%		0.14%			
94005		Neuse Regional Library-Greene County	8.19%		0.19%			
94011		Hookerton, Town of	8.02%		0.02%			
94021		Snow Hill, Town of	8.00%	8.89%		0.14%		
94031		Walstonburg, Town of	15.28%				43,184	9/30/2033
94101	71180	Guilford County	8.05%	8.89%	0.05%	0.14%		
94102		Guil-Rand Fire Department	8.00%					
94108		Pinecroft-Sedgefield Fire Dist Inc	8.00%					
94109		Alamance Commuity Fire District	8.00%					



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
94111	71140	Greensboro, City of	8.06%	8.89%	0.06%	0.14%		
94112		Piedmont Triad Reg Water Auth	8.08%	8.89%	0.08%	0.14%		
94117	71150	Greensboro A.B.C. Bd	8.09%	8.89%	0.09%	0.14%		
94118		Guilford Fire District #13 Inc	8.00%					
94121	71340	High Point, City of	8.06%	8.89%	0.06%	0.14%		
94127		High Point A.B.C. Bd	8.11%		0.11%			
94131	71442	Jamestown, Town of	8.06%	8.89%	0.06%	0.14%		
94151	71060	Gibsonville, Town of	8.07%	8.89%	0.07%	0.14%		
94157		Gibsonville A.B.C. Board	8.00%					
94161		Oak Ridge, Town of	8.00%					
94168		Colfax Volunteer Fire Department	8.00%					
94171		Summerfield, Town of	8.00%					
94172		Summerfield Fire District	8.04%		0.04%			
94201	71200	Halifax County	8.06%	8.89%	0.06%	0.14%		
94204		Halifax County A.B.C. Board	8.11%		0.11%			
94205		Halifax County Tourism Development Authority	8.10%		0.10%			
94209		Roanoke Rapids Sanitary District	8.06%		0.06%			
94211	70895	Enfield, Town of	8.19%	8.89%	0.19%	0.14%		
94221	72440	Roanoke Rapids, City of	8.07%	8.89%	0.07%	0.14%		
94231	73017	Weldon, Town of	8.13%	8.89%	0.13%	0.14%		
94241	72590	Scotland Neck, Town of	8.13%	8.89%	0.13%	0.14%		
94251		Hobgood, Town of	8.08%		0.08%			
94261	71615	Littleton, Town of	8.00%	8.89%		0.14%		
94301	71230	Harnett County	8.06%	8.89%	0.06%	0.14%		
94311	70760	Dunn, City of	8.07%	8.89%	0.07%	0.14%		
94313		Dunn Housing Authority	8.20%		0.20%			
94317		Dunn A.B.C. Board	8.04%		0.04%			
94321	71585	Lillington, Town of	8.05%	8.89%	0.05%	0.14%		
94331	70900	Erwin, Town of	8.12%	8.89%	0.12%	0.14%		
94341	70570	Coats, Town of	8.07%	8.89%	0.07%	0.14%		
94347		Angier A.B.C. Board	8.07%		0.07%			
94351	70038	Angier, Town of	8.00%	8.89%		0.14%		
94401	71250	Haywood County	8.07%	8.89%	0.07%	0.14%		
94403		Haywood County Tourism Development Authority	8.00%					
94408		Junaluska Sanitary District	8.06%		0.06%			



# North Carolina Local Governmental Employees' Retirement System

## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
94411	73010	Waynesville, Town of	8.08%	8.89%	0.08%	0.14%		
94412	73015	Waynesville A.B.C. Board	8.31%	8.89%	0.31%	0.14%		
94421	71685	Maggie Valley, Town of	8.00%	8.89%		0.14%		
94427		Maggie Valley A.B.C. Board	8.00%					
94428		Maggie Valley Sanitary Dist	8.00%					
94431	70362	Canton, Town of	12.79%	13.62%	0.06%	0.14%	277,768	6/30/2020
94437		Canton A.B.C. Board	12.88%				44,907	12/31/2027
94501	71275	Henderson County	8.05%	8.89%	0.05%	0.14%		
94511	71280	Hendersonville, City of	8.06%	8.89%	0.06%	0.14%		
94517		Hendersonville A.B.C. Bd	8.00%					
94521	71525	Laurel Park, Town of	8.06%	8.89%	0.06%	0.14%		
94527		Laurel Park A.B.C. Board	8.07%		0.07%			
94531		Flat Rock, Village of	8.00%					
94532		Blue Ridge Fire Department	8.05%		0.05%			
94541	70943	Fletcher, Town of	8.00%	8.89%		0.14%		
94547		Fletcher A.B.C. Board	8.00%					
94551		Mills River, Town of	8.31%		0.31%			
94601	71310	Hertford County	8.08%	8.89%	0.08%	0.14%		
94604	71320	Hertford County A.B.C. Board	8.09%	8.89%	0.09%	0.14%		
94606		Hertford County Public Health Authority	8.13%		0.13%			
94611	70007	Ahoskie, Town of	8.15%	8.89%	0.15%	0.14%		
94621	71970	Murfreesboro, Town of	8.00%	8.89%		0.14%		
94631	73155	Winton, Town of	8.17%	8.89%	0.17%	0.14%		
94641		Cofield, Town of	8.00%					
94701	71370	Hoke County	8.08%	8.89%	0.08%	0.14%		
94704		Hoke County A.B.C. Board	8.14%		0.14%			
94711	72355	Raeford, Town of	8.10%	8.89%	0.10%	0.14%		
94801	71400	Hyde County	8.10%	8.89%	0.10%	0.14%		
94804		Hyde County A.B.C. Board	8.00%					
94812		Ocracoke Sanitary Dist	8.13%		0.13%			
94901	71420	Iredell County	8.06%	8.89%	0.06%	0.14%		
94908		Greater Statesville Development Corp	8.00%					
94911	72700	Statesville, City of	8.07%	8.89%	0.07%	0.14%		
94917	72710	Statesville A.B.C. Board	8.17%	8.89%	0.17%	0.14%		
94921	71850	Mooresville, City of	8.05%	8.89%	0.05%	0.14%		



# North Carolina Local Governmental Employees' Retirement System



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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
94923		Mooresville Housing Authority	8.06%		0.06%			
94927		Mooresville A.B.C. Board	8.09%		0.09%			
94931	72815	Troutman, Town of	8.14%	8.89%	0.14%	0.14%		
94941		Mi Connection Communications System	8.00%					
95001	71430	Jackson County	8.08%	8.89%	0.08%	0.14%		
95002		Tuckaseigee Water Authority	8.08%		0.08%			
95005		Fontana Regional Library	8.12%		0.12%			
95008		Southwestern NC Planning & Econ Dev Comm	8.07%		0.07%			
95009		Vaya Health	8.05%		0.05%			
95011	72750	Sylva, Town of	8.08%	8.89%	0.08%	0.14%		
95017		Jackson County A.B.C. Board	8.08%		0.08%			
95101	71460	Johnston County	8.05%	8.89%	0.05%	0.14%	152,120	12/31/2036
95103		Benson Housing Authority	11.93%					
95104		Johnston County A.B.C. Board	8.14%		0.14%			
95105		Public Library of Johnston Co and Smithfield	8.06%		0.06%			
95106		Archer Lodge, Town of	8.69%		0.16%		3,878	6/30/2028
95110		Johnston Health Center	8.10%		0.10%			
95111	72630	Smithfield, Town of	8.07%	8.89%	0.07%	0.14%		
95113		Smithfield Housing Authority	18.68%				209,206	6/30/2023
95121	72594	Selma, Town of	8.08%	8.89%	0.08%	0.14%		
95122		Micro, Town of	10.47%	11.36%		0.14%	10,227	3/31/2036
95123		Selma Housing Authority	8.08%		0.08%			
95131	70540	Clayton, Town of	8.05%	8.89%	0.05%	0.14%		
95141	70170	Benson, Town of	8.05%	8.89%	0.05%	0.14%		
95151	70954	Four Oaks, Town of	8.00%	8.89%		0.14%		
95161	72295	Pine Level, Town of	8.00%	8.89%		0.14%		
95171	71472	Kenly, Town of	8.00%	8.89%		0.14%		
95181	72349	Princeton, Town of	8.00%	8.89%		0.14%		
95191		Wilson's Mills, Town of	10.82%	11.71%		0.14%	30,324	6/30/2021
95201	71465	Jones County	8.06%	8.89%	0.06%	0.14%		
95204		Jones County A.B.C. Board	8.43%		0.43%			
95205		Neuse Regional Library-Jones County	8.33%		0.33%			
95211		Pollocksville, Town of	8.37%		0.37%			
95221	71745	Maysville, Town of	8.00%	8.89%		0.14%		
95301	71535	Lee County	8.06%	8.89%	0.06%	0.14%		



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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
95311	72565	Sanford, City of	8.00%	8.89%		0.14%		
95317		Sanford A.B.C. Board	8.22%		0.22%			
95321	70265	Broadway, Town of	8.12%	8.89%	0.12%	0.14%		
95401	71550	Lenoir County	8.08%	8.89%	0.08%	0.14%		
95404		Lenoir County A.B.C. Board	8.06%	8.89%	0.06%	0.14%		
95405		Neuse Regional Library	8.14%		0.14%			
95411	71500	Kinston, City of	8.09%	8.89%	0.09%	0.14%		
95413		Kinston Housing Authority	8.06%		0.06%			
95415		Kinston-Lenoir Co Pub Library	8.10%		0.10%			
95421	72305	Pink Hill, Town of	8.05%	8.89%	0.05%	0.14%		
95431	71517	Lagrange, Town of	8.04%	8.89%	0.04%	0.14%		
95501	71590	Lincoln County	8.08%	8.89%	0.08%	0.14%		
95504		Lincoln County A.B.C. Board	9.14%				9,480	6/30/2026
95511	71600	Lincolnton, City of	8.08%	8.89%	0.08%	0.14%		
95513		Lincolnton Housing Authority	8.11%		0.11%			
95517		Lincolnton A.B.C. Board	8.14%		0.14%			
95601	71680	Macon County	8.08%	8.89%	0.08%	0.14%		
95611	70955	Franklin, Town of	8.08%	8.89%	0.08%	0.14%		
95617		Highlands A.B.C. Board	8.26%		0.26%			
95621	71335	Highlands, Town of	8.00%	8.89%		0.14%		
95701	71684	Madison County	8.08%	8.89%	0.08%	0.14%		
95711	71718	Mars Hill, Town of	8.07%	8.89%	0.07%	0.14%		
95721	71711	Marshall, Town of	8.10%	8.89%	0.10%	0.14%		
95733		Hot Springs Housing Authority	8.00%					
95801	71730	Martin County	8.08%	8.89%	0.08%	0.14%		
95802		Martin Co Travel & Tourism Auth	8.48%		0.48%			
95804		Martin County A.B.C. Board	8.04%		0.04%			
95811	73080	Williamston, Town of	8.00%	8.89%		0.14%		
95813		Williamston Housing Authority	19.66%		0.09%		48,812	3/31/2019
95821		Oak City, Town of	8.00%					
95831		Hamilton, Town of	8.16%		0.16%		4,195	6/30/2018
95841		Jamesville, Town of	8.00%					
95851	72445	Robersonville, Town of	17.63%	18.52%		0.14%	154,804	12/31/2019
95853		Robersonville Authority	8.00%					
95901	71762	McDowell County	8.08%	8.89%	0.08%	0.14%		



# North Carolina Local Governmental Employees' Retirement System

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
95908		Pleasant Garden Fire Dept	8.00%					
95911	71710	Marion, Town of	8.09%	8.89%	0.09%	0.14%		
95917		Marion A.B.C. Board	8.00%					
95921	72140	Old Fort, Town of	8.00%	8.89%		0.14%		
96001	71770	Mecklenburg County	8.04%	8.89%	0.04%	0.14%		
96003		Charlotte Housing Authority	8.00%					
96004	71780	Mecklenburg County A.B.C. Board	8.10%	8.89%	0.10%	0.14%		
96005		Charlotte Mecklenburg Public Library	8.05%		0.05%			
96008		Mecklenburg Emer Med Svcs Agcy	8.02%		0.02%			
96009		Centralina Council Of Governments	8.00%					
96011	70480	Charlotte, City of	8.00%	8.89%		0.14%		
96012		Charlotte Regional Visitors Authority	8.00%					
96018		Charlotte Firemen's Ret Sys	8.00%					
96021	72300	Pineville, Town of	8.04%	8.89%	0.04%	0.14%		
96031	71775	Mint Hill, Town of	8.04%	8.89%	0.04%	0.14%		
96041	71397	Huntersville, Town of	8.00%	8.89%		0.14%		
96051	70625	Cornelius, Town of	8.00%	8.89%		0.14%		
96061	72679	Stallings, Town of	8.11%	8.89%	0.11%	0.14%		
96071	71740	Matthews, Town of	8.07%	8.89%	0.07%	0.14%		
96081	70724	Davidson, Town of	8.09%	8.89%	0.09%	0.14%		
96101	71788	Mitchell County	8.12%	8.89%	0.12%	0.14%		
96102		Mitchell Soil & Water Conservation Dist	8.00%					
96111	72678	Spruce Pine, Town of	8.16%	8.89%	0.16%	0.14%		
96121	70105	Bakersville, Town of	8.00%	8.89%		0.14%		
96201	71815	Montgomery County	8.08%	8.89%	0.08%	0.14%		
96204		Montgomery-Municipal A.B.C. Board	8.12%		0.12%			
96211	72685	Star, Town of	8.00%	8.89%		0.14%		
96221	72822	Troy, Town of	8.00%	8.89%		0.14%		
96231	70192	Biscoe, Town of	8.00%	8.89%		0.14%		
96241	70360	Candor, Town of	8.00%	8.89%		0.14%		
96251	71920	Mount Gilead, Town of	8.06%	8.89%	0.06%	0.14%		
96301	71830	Moore County	8.06%	8.89%	0.06%	0.14%		
96302	72776	Taylortown, Town of	8.00%	8.89%		0.14%		
96304	71840	Moore County A.B.C. Board	8.16%	8.89%	0.16%	0.14%		
96305		Moore County Tourism Development Authority	8.17%		0.17%			



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
96310		Moore County Airport Authority	8.11%		0.11%			
96311	72640	Southern Pines, Town of	8.05%	8.89%	0.05%	0.14%		
96312	70358	Cameron, Town of	8.00%	8.89%		0.14%		
96318		Sandhills Center	8.00%					
96321	72920	Vass, Town of	8.15%	8.89%	0.15%	0.14%		
96331	70005	Aberdeen, Town of	8.09%	8.89%	0.09%	0.14%		
96341	72443	Robbins, Town of	8.00%	8.89%		0.14%		
96351	72287	Pinehurst, Village of	8.06%	8.89%	0.06%	0.14%		
96361	72285	Pinebluff, Town of	8.19%	8.89%	0.19%	0.14%		
96371	73040	Whispering Pines, Village of	8.08%	8.89%	0.08%	0.14%		
96381	70953	Foxfire Village	8.08%	8.89%	0.08%	0.14%		
96391	70390	Carthage, Town of	8.00%	8.89%		0.14%		
96401	71990	Nash County	8.05%	8.89%	0.05%	0.14%		
96404	72000	Nash County A.B.C. Board	8.13%	8.89%	0.13%	0.14%		
96405		Braswell Memorial Library	9.20%				40,032	6/30/2021
96411	72675	Spring Hope, Town of	8.00%	8.89%		0.14%		
96421	71995	Nashville, Town of	8.08%	8.89%	0.08%	0.14%		
96431	71785	Middlesex, Town of	8.15%	8.89%	0.15%	0.14%		
96441	73045	Whitakers, Town of	8.00%	8.89%		0.14%		
96451	70104	Bailey, Town of	8.00%	8.89%		0.14%		
96461	72600	Sharpsburg, Town of	8.00%	8.89%		0.14%		
96501	72030	New Hanover County	8.05%	8.89%	0.05%	0.14%		
96502	72024	New Hanover Airport Auth	8.06%	8.89%	0.06%	0.14%		
96503		Wilmington Housing Authority	14.35%				841,994	6/30/2024
96504		New Hanover County A.B.C. Board	8.23%		0.23%			
96507		Cape Fear Public Utility Authority	8.00%					
96508		Lower Cape Fear Water & Sewer Auth	8.59%		0.59%			
96511	73165	Wrightsville Beach, Town of	8.06%	8.89%	0.06%	0.14%		
96512		Cape Fear Public Transportation Authority	8.00%					
96521	70375	Carolina Beach, Town of	8.00%	8.89%		0.14%		
96531	73090	Wilmington, City of	8.00%	8.89%		0.14%		
96541	71515	Kure Beach, Town of	8.15%	8.89%	0.15%	0.14%		
96601	72060	Northampton County	8.07%	8.89%	0.07%	0.14%		
96604		Northampton County A.B.C. Board	8.30%		0.30%			
96611	72432	Rich Square, Town of	8.00%	8.89%		0.14%		



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
96612		Choanoke Public Transportation Auth	8.00%					
96621	73162	Woodland, Town of	8.00%	8.89%		0.14%		
96631	71020	Garysburg, Town of	8.00%	8.89%		0.14%		
96641	70620	Conway, Town of	8.00%	8.89%		0.14%		
96651	71032	Gaston, Town of	8.00%	8.89%		0.14%		
96661	71435	Jackson, Town of	8.00%	8.89%		0.14%		
96671	72595	Severn, Town of	8.00%	8.89%		0.14%		
96681	72591	Seaboard, Town	12.71%	13.60%		0.14%	38,833	12/31/2025
96701	72150	Onslow County	8.05%	8.89%	0.05%	0.14%		
96704	72160	Onslow County A.B.C. Board	8.12%	8.89%	0.12%	0.14%		
96708		Onslow Water & Sewer Authority	9.36%		0.14%		535,730	6/30/2027
96711	71440	Jacksonville, City of	8.07%	8.89%	0.07%	0.14%		
96721	72745	Swansboro, Town of	8.07%	8.89%	0.07%	0.14%		
96731	71380	Holly Ridge, Town of	8.09%	8.89%	0.09%	0.14%		
96733		Holly Ridge Housing Authority	8.06%		0.06%			
96741	72420	Richlands, Town of	8.00%	8.89%		0.14%		
96751	72789	North Topsail Beach, Town of	8.15%	8.89%	0.15%	0.14%		
96801	72170	Orange County	8.05%	8.89%	0.05%	0.14%		
96804		Orange County A.B.C. Board	8.06%		0.06%			
96808		Orange Water and Sewer Authority	8.05%		0.05%			
96811	70470	Chapel Hill, Town of	8.07%	8.89%	0.07%	0.14%		
96821	70372	Carrboro, Town of	8.06%	8.89%	0.06%	0.14%		
96831	71360	Hillsborough, Town of	8.05%	8.89%	0.05%	0.14%		
96901	72210	Pamlico County	8.08%	8.89%	0.08%	0.14%		
96911		Bayboro, Town of	8.00%					
96912	72195	Oriental, Town of	8.00%	8.89%		0.14%		
96918		Bay River Metro Sewerage District	8.13%		0.13%			
97001	72220	Pasquotank County	8.10%	8.89%	0.10%	0.14%		
97002		Pasquotank-Camden Ambulance Service	8.06%		0.06%			
97004		Pasquotank Co A.B.C. Board	8.21%		0.21%			
97005		East Albemarle Regional Library	8.06%		0.06%			
97008		Albemarle District Jail Commission	8.00%					
97011	70840	Elizabeth City	8.07%	8.89%	0.07%	0.14%		
97012		Elizabeth City-Pasquotank Co Airport Auth	10.80%				15,698	6/30/2021
97013		Elizabeth City Pasquotank County TDA	10.27%				30,344	6/30/2031



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
97015		Pasquotank-Camden Library	8.09%		0.09%			
97018		Elizabeth City-Pasquotank Co Industrial Development	8.28%		0.28%			
97101	72235	Pender County	8.06%	8.89%	0.06%	0.14%		
97104		Pender County A.B.C. Board	8.12%		0.12%			
97111	70300	Burgaw, Town of	8.00%	8.89%		0.14%		
97121	72790	Topsail Beach, Town of	8.14%	8.89%	0.14%	0.14%		
97131	72725	Surf City, Town of	8.06%	8.89%	0.06%	0.14%		
97201	72245	Perquimans County	8.10%	8.89%	0.10%	0.14%		
97211	71300	Hertford, Town of	8.11%	8.89%	0.11%	0.14%		
97213		Hertford Housing Auth	8.00%					
97217	71305	Hertford A.B.C. Board	8.34%	8.89%	0.34%	0.14%		
97221	73124	Winfall, Town of	8.00%	8.89%		0.14%		
97301	72250	Person County	8.06%	8.89%	0.06%	0.14%		
97304		Person Co A.B.C. Bd	8.23%		0.23%			
97311	72520	Roxboro, City of	8.08%	8.89%	0.08%	0.14%		
97401	72310	Pitt County	8.05%	8.89%	0.05%	0.14%		
97402		Pitt-Greenville Conv & Vistors	8.00%					
97404	72320	Pitt County A.B.C. Board	8.05%	8.89%	0.05%	0.14%		
97405		Sheppard Memorial Library	8.10%		0.10%			
97408		Contennea Metropolitan Sewerage Dist	8.09%		0.09%			
97411	71160	Greenville, City of	8.05%	8.89%	0.05%	0.14%		
97412		Greenville Utilities Commission	8.04%		0.04%			
97413		Greenville Housing Authority	8.07%		0.07%			
97421	70930	Farmville, Town of	8.07%	8.89%	0.07%	0.14%		
97423		Farmville Housing Authority	14.94%				116,819	6/30/2024
97431	71170	Grifton, Town of	8.12%	8.89%	0.12%	0.14%		
97441	70157	Bethel, Town of	8.08%	8.89%	0.08%	0.14%		
97451	73150	Winterville, Town of	8.05%	8.89%	0.05%	0.14%		
97461	70100	Ayden, Town of	8.00%	8.89%		0.14%		
97471		Grimesland, Town of	8.17%		0.17%			
97481	72626	Simpson, Village of	8.00%	8.89%		0.14%		
97501	72340	Polk County	8.10%	8.89%	0.10%	0.14%		
97511	72823	Tryon, Town of	8.12%	8.89%	0.12%	0.14%		
97521	70581	Columbus, Town of	8.00%	8.89%		0.14%		
97527		Columbus A.B.C. Board	8.00%					



# North Carolina Local Governmental Employees' Retirement System

## Appendix H: Detailed Table of Rates of Contributions Payable by Employer

The table below provides the total contribution rates payable for the year beginning July 1, 2019 by all participating employers.

Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
97531	72560	Saluda, City of	8.02%	8.89%	0.02%	0.14%		
97601	72380	Randolph County	8.06%	8.89%	0.06%	0.14%		
97607		Asheboro A.B.C. Board	8.00%					
97611	70064	Asheboro, City of	8.08%	8.89%	0.08%	0.14%		
97613		Asheboro Housing Authority	8.11%		0.11%			
97621	72377	Randleman, City of	8.06%	8.89%	0.06%	0.14%		
97623		Randleman Housing Authority	8.08%		0.08%			
97627		Randleman A.B.C. Board	8.05%		0.05%			
97631	71582	Liberty, Town of	8.05%	8.89%	0.05%	0.14%		
97637		Liberty A.B.C. Board	8.20%		0.20%			
97641	72375	Ramseur, Town of	8.00%	8.89%		0.14%		
97651	70063	Archdale, City of	8.10%	8.89%	0.10%	0.14%		
97661		Trinity, City of	8.00%					
97701	72430	Richmond County	8.07%	8.89%	0.07%	0.14%		
97705		Sandhill Regional Library	8.07%		0.07%			
97711	72460	Rockingham, City of	8.08%	8.89%	0.08%	0.14%		
97713		Rockingham Authority	8.04%		0.04%			
97717		Hamlet A.B.C. Board	8.07%		0.07%			
97721	71220	Hamlet, City of	8.08%	8.89%	0.08%	0.14%		
97727		Rockingham A.B.C. Board	8.11%		0.11%			
97731		Ellerbe, Town of	8.00%					
97801	72450	Robeson County	8.06%	8.89%	0.06%	0.14%		
97802		Lumber River Council of Governments	8.03%		0.03%			
97803		Robeson County Housing Authority	8.15%		0.15%			
97805		Robeson County Public Library	8.12%		0.12%			
97811	71670	Lumberton, City of	8.08%	8.89%	0.08%	0.14%		
97817		Lumberton A.B.C. Board	8.00%					
97818		Lumberton Airport Comm	8.00%					
97821	70910	Fairmont, Town of	8.20%	8.89%	0.20%	0.14%		
97823		Fairmont Housing Authority	8.06%		0.06%			
97831	72540	St Pauls, Town of	8.09%	8.89%	0.09%	0.14%		
97837		St Paul's Brd of Alcoholic CTL	8.00%					
97840	71750	Maxton, Town of	13.07%	13.86%	0.10%	0.14%	233,767	6/30/2023
97841		Parkton, Town of	10.05%				20,626	9/30/2035
97847		Maxton A.B.C. Board	8.18%		0.18%			



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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
97851	72228	Pembroke, Town of	8.11%	8.89%	0.11%	0.14%		
97853		Pembroke Housing Authority	8.00%					
97861	72510	Rowland, Town of	8.34%	8.89%	0.34%	0.14%		
97871	72395	Red Springs, Town of	14.70%	15.48%	0.11%	0.14%	553,820	6/30/2022
97877		Red Springs A.B.C. Board	8.00%					
97901	72470	Rockingham County	8.06%	8.89%	0.06%	0.14%		
97911	72400	Reidsville, City of	8.08%	8.89%	0.08%	0.14%		
97913		New Reidsville Housing Auth	8.16%		0.16%		1,542	6/30/2018
97917		Reidsville A.B.C. Board	8.06%		0.06%			
97921	71755	Mayodan, Town of	8.18%	8.89%	0.18%	0.14%		
97931	72721	Stoneville, Town of	8.00%	8.89%		0.14%		
97941	71683	Madison, Town of	8.11%	8.89%	0.11%	0.14%		
97947		Madison A.B.C. Board	11.56%				18,548	12/31/2022
97948		Madison-Mayodan Recreation Comm	8.00%					
97951	70815	Eden, City of	8.00%	8.89%		0.14%		
97957		Eden A.B.C. Board	8.00%					
98001	72490	Rowan County	8.06%	8.89%	0.06%	0.14%	398	6/30/2026
98002		rowen Convention & Visitors Bureau	8.09%				87,095	6/30/2021
98003		Rowan Co Housing Authority	12.35%					
98004	72500	Rowan County A.B.C. Board	8.18%	8.89%	0.18%	0.14%		
98008		Rowan Co Soil & Water Conv Dist	9.04%				2,252	6/30/2023
98011	72550	Salisbury, City of	8.06%	8.89%	0.06%	0.14%		
98013		Salisbury Housing Authority	14.51%				158,516	6/30/2020
98021	70812	East Spencer, Town of	8.19%	8.89%	0.19%	0.14%		
98023		East Spencer Housing Authority	8.07%		0.07%			
98031	72665	Spencer, Town of	8.10%	8.89%	0.10%	0.14%		
98041	70522	China Grove, Town of	8.05%	8.89%	0.05%	0.14%		
98051	71522	Landis, Town of	8.00%	8.89%		0.14%		
98061	71105	Granite Quarry, Town of	8.03%	8.89%	0.03%	0.14%		
98071	72475	Rockwell, Town of	8.00%	8.89%		0.14%		
98081		Faith, Town of	8.00%					
98091	70552	Cleveland, Town of	8.12%	8.89%	0.12%	0.14%		
98101	72530	Rutherford County	8.07%	8.89%	0.07%	0.14%		
98102		Broad River Water Authority	8.22%		0.05%		3,957	6/30/2020
98103		Rutherford Polk McDowell Dist Brd of Health	8.06%		0.06%			





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			General Employees	Law Enforcement	General Employees	Law Enforcement		
98107		Forest City A.B.C. Board 168	8.00%					
98109		Isothermal Planning and Dev Comm	8.07%		0.07%			
98111	70950	Forest City, Town of	8.07%	8.89%	0.07%	0.14%		
98113		Forest City Housing Authority	8.00%					
98121	72670	Spindale, Town of	8.09%	8.89%	0.09%	0.14%		
98131	71518	Lake Lure, Town of	8.00%	8.89%		0.14%		
98141	72535	Rutherfordton, Town of	8.09%	8.89%	0.09%	0.14%		
98147		Rutherfordton A.B.C. Board	8.00%					
98161		Ellenboro, Town of	8.00%					
98201	72563	Sampson County	8.06%	8.89%	0.06%	0.14%		
98205		J C Holiday Mem Library	8.06%		0.06%			
98211	70555	Clinton, City of	8.08%	8.89%	0.08%	0.14%		
98218		Clinton A.B.C. Board	8.09%		0.09%			
98221	72547	Salemburg, Town of	8.07%	8.89%	0.07%	0.14%		
98231	72050	Newton Grove, Town of	8.10%	8.89%	0.10%	0.14%		
98237		Roseboro A.B.C. Board	8.00%					
98241	71000	Garland, Town of	8.06%	8.89%	0.06%	0.14%		
98251		Turkey, Town of	8.14%		0.14%			
98261	72486	Roseboro, Town of	8.14%	8.89%	0.14%	0.14%		
98271		Autryville, Town of	8.83%		0.83%			
98301	72580	Scotland County	8.08%	8.89%	0.08%	0.14%		
98304		Scotland County A.B.C. Board	8.17%		0.17%			
98308		Laurinburg-Maxton Airport Commission	8.00%					
98311	71530	Laurinburg, City of	8.06%	8.89%	0.06%	0.14%		
98313		Laurinburg Housing Authority	14.78%		0.13%		972,555	12/31/2026
98321	72935	Wagram, Town of	8.09%	8.89%	0.09%	0.14%		
98331	71051	Gibson, Town of	9.59%	10.48%		0.14%	7,438	3/31/2025
98401	72683	Stanly County	8.09%	8.89%	0.09%	0.14%		
98404		Locust A.B.C. Board	8.00%					
98411	70030	Calbamarle, City of	8.06%	8.89%	0.06%	0.14%		
98414	71786	Misenheimer, Village of	8.00%	8.89%		0.14%		
98417		Albemarle A.B.C. Board	9.29%				7,348	6/30/2021
98421	72110	Norwood, Town of	8.19%	8.89%	0.19%	0.14%		
98427		Norwood A.B.C. Bd	8.00%					
98431	71620	Locust, City of	8.00%	8.89%		0.14%		



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			General Employees	Law Enforcement	General Employees	Law Enforcement		
98441	72120	Oakboro, Town of	8.00%	8.89%		0.14%		
98451	70103	Badin, Town of	8.08%	8.89%	0.08%	0.14%		
98471		New London, Town of	8.00%					
98481	72680	Stanfield, Town of	8.00%	8.89%		0.14%		
98501	72720	Stokes County	8.08%	8.89%	0.08%	0.14%		
98511	72975	Walnut Cove, Town of	8.09%	8.89%	0.09%	0.14%		
98517		Walnut Cove A.B.C. Board	8.00%					
98521	71487	King, City of	8.06%	8.89%	0.06%	0.14%		
98601	72730	Surry County	8.06%	8.89%	0.06%	0.14%		
98604		Yadkin Valley A.B.C. Board	8.00%					
98607		Pilot Mountain A.B.C. Board	8.00%					
98608		Yadkin Valley Sewer Authority	8.00%					
98611	72280	Pilot Mountain, Town of	8.09%	8.89%	0.09%	0.14%		
98621	70735	Dobson, Town of	8.07%	8.89%	0.07%	0.14%		
98627		Dobson A.B.C. Bd	8.00%					
98631	71910	Mount Airy, City of	8.17%	8.89%	0.17%	0.14%		
98637		Mount Airy Alcoholic Board of Control	8.17%		0.17%			
98641	70855	Elkin, Town of	8.11%	8.89%	0.11%	0.14%		
98701	72740	Swain County	8.08%	8.89%	0.08%	0.14%		
98711	70285	Bryson City, Town of	8.09%	8.89%	0.09%	0.14%		
98717		Bryson City A.B.C. Board	8.08%		0.08%			
98801	72800	Transylvania County	8.07%	8.89%	0.07%	0.14%		
98811	70260	Brevard, City of	8.08%	8.89%	0.08%	0.14%		
98817		Brevard A.B.C. Board	8.00%					
98901	72825	Tyrrell County	8.09%	8.89%	0.09%	0.14%		
98904		Tyrrell Co A.B.C. Board	8.06%		0.06%			
98911		Columbia, Town of	8.00%					
99001	72830	Union County	8.05%	8.89%	0.05%	0.14%		
99011	71800	Monroe, City of	8.06%	8.89%	0.06%	0.14%		
99013		Monroe Housing Authority	8.10%		0.10%			
99014		Indian Trail A.B.C. Board	9.90%		0.18%		37,445	6/30/2036
99017		Monroe A.B.C. Board	8.29%		0.29%			
99021	71720	Marshville, Town of	8.08%	8.89%	0.08%	0.14%		
99022		Mineral Springs, Town of	12.70%				54,824	6/30/2033
99031	73125	Wingate, Town of	8.08%	8.89%	0.08%	0.14%		



# North Carolina Local Governmental Employees' Retirement System

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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
99041	72995	Waxhaw, Town of	8.05%	8.89%	0.05%	0.14%		
99047		Waxhaw A.B.C. Board	8.00%					
99051		Indian Trail, Town of	8.04%		0.04%			
99061		Unionville, Town of	8.00%				1,836	6/30/2018
99071		Weddington, Town of	8.08%		0.08%			
99081		Marvin, Village of	8.00%					
99091		Wesley Chapel, Village of	8.00%					
99101	72890	Vance County	8.06%	8.89%	0.06%	0.14%		
99104		Vance County A.B.C. Bd	8.00%					
99109		Kerr-Tar Regional Council of Govts	8.04%		0.04%			
99110		Kerr Area Transportation Authority	8.00%					
99111	71270	Henderson, City of	8.10%	8.89%	0.10%	0.14%		
99201	72940	Wake County	8.04%	8.89%	0.04%	0.14%		
99202	71385	Holly Springs, Town of	8.05%	8.89%	0.05%	0.14%		
99203	72485	Rolesville, Town of	8.11%	8.89%	0.11%	0.14%		
99204	72950	Wake County A.B.C. Board	8.07%	8.89%	0.07%	0.14%		
99206	71882	Morrisville, Town of	8.04%	8.89%	0.04%	0.14%		
99207		Wake County Housing Authority	8.00%					
99208		Bayleaf Fire Department	8.00%					
99210		Electricities of NC	8.00%					
99211	72360	Raleigh, City of	8.00%	8.89%		0.14%		
99212		Durham Hwy Fire Protection Assoc	8.00%					
99213		Raleigh Housing Authority	8.06%		0.06%			
99218	72370	Raleigh-Durham Airport Authority	8.05%	8.89%	0.05%	0.14%		
99221	70400	Cary, Town of	8.05%	8.89%	0.05%	0.14%		
99222		Centennial Authority	8.03%		0.03%			
99231	73020	Wendell, Town of	8.05%	8.89%	0.05%	0.14%		
99241	73210	Zebulon, Town of	8.04%	8.89%	0.04%	0.14%		
99251	71010	Garner, Town of	8.04%	8.89%	0.04%	0.14%		
99252		Garner Fire Dept	8.02%		0.02%			
99261	70990	Fuquay-Varina, Town of	8.05%	8.89%	0.05%	0.14%		
99271	70050	Apex, Town of	8.04%	8.89%	0.04%	0.14%		
99281	72960	Wake Forest, Town of	8.10%	8.89%	0.10%	0.14%		
99291	71510	Knightdale, Town of	8.03%	8.89%	0.03%	0.14%		
99301	72980	Warren County	8.08%	8.89%	0.08%	0.14%		



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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
99304	72979	Warren County A.B.C. Board	8.00%	8.89%		0.14%		
99311	72055	Norlina, Town of	8.00%	8.89%		0.14%		
99321	72991	Warrenton, Town of	8.00%	8.89%		0.14%		
99401	72985	Washington County	8.10%	8.89%	0.10%	0.14%		
99404		Washington County A.B.C. Board	8.11%		0.11%			
99405		Pettigrew Regional Library	8.11%		0.11%			
99411	72335	Plymouth, Town of	8.11%	8.89%	0.11%	0.14%		
99413		Plymouth Housing Authority	8.10%		0.10%			
99421		Roper, Town of	8.00%					
99431		Creswell, Town of	8.03%		0.03%			
99501	72983	Watauga County	8.10%	8.89%	0.10%	0.14%		
99502		Region D Council of Governments	8.00%					
99508		Blowing Rock Tourism Development Authority	8.00%					
99509		Watauga County District Tourism Dev Auth	8.00%					
99511	70240	Boone, Town of	8.05%	8.89%	0.05%	0.14%		
99521	70220	Blowing Rock, Town of	8.05%	8.89%	0.05%	0.14%		
99527		Blowing Rock A.B.C. Board	8.00%					
99531	72596	Seven Devils, Town of	8.00%	8.89%		0.14%		
99601	72997	Wayne County	8.07%	8.89%	0.07%	0.14%		
99602		Fork Township Sanitary Dist	8.03%		0.03%			
99603		Eastern Carolina Reg'l Housing Auth	8.00%					
99604		Wayne County A.B.C. Board	8.17%	8.89%	0.17%	0.14%		
99609		Southern Wayne Sanitary District	8.10%		0.10%			
99610		Eastern Wayne Sanitary Dist	8.14%		0.14%			
99611	71070	Goldsboro, City of	8.07%	8.89%	0.07%	0.14%		
99613		Goldsboro Housing Authority	8.06%		0.06%			
99621	71940	Mount Olive, Town of	8.00%	8.89%		0.14%		
99623		Mt Olive Housing Authority	8.00%					
99631	70980	Fremont, Town of	8.00%	8.89%		0.14%		
99651	72270	Pikeville, Town of	8.00%	8.89%		0.14%		
99661	72977	Walnut Creek, Village of	8.00%	8.89%		0.14%		
99701	73075	Wilkes County	8.06%	8.89%	0.06%	0.14%		
99705		Appalachian Regional Library	8.00%					
99711	72105	North Wilkesboro, Town of	8.11%	8.89%	0.11%	0.14%		
99717		North Wilkesboro A.B.C. Board	8.07%		0.07%			



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Employer Code	LEO Employer Code	Employer	<u>Total Rate**</u>		<u>Death Benefit Rate</u>		12/31/2017 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
99721	73072	Wilkesboro, Town of	8.07%	8.89%	0.07%	0.14%		
99727		Wilkesboro A.B.C. Board	8.00%					
99801	73110	Wilson County	8.05%	8.89%	0.05%	0.14%		
99802		Wilson County Tourism Development Auth	8.00%					
99804		Wilson County A.B.C. Board	8.11%		0.11%			
99811	73100	Wilson, City of	8.05%	8.89%	0.05%	0.14%		
99812		Wilson Economic Dev Council	8.00%					
99818		Wilson Cemetary Commission	8.00%					
99821	72684	Stantonsburg, Town of	8.00%	8.89%		0.14%		
99831	70195	Black Creek, Town of	8.00%	8.89%		0.14%		
99841	71660	Lucama, Town of	8.05%	8.89%	0.05%	0.14%		
99851	70870	Elm City, Town of	8.00%	8.89%		0.14%		
99901	73170	Yadkin County	8.07%	8.89%	0.07%	0.14%		
99911	73180	Yadkinville, Town of	8.06%	8.89%	0.06%	0.14%		
99921	71467	Jonesville, Town of	8.21%	8.89%	0.21%	0.14%		
99931	70805	East Bend, Town of	8.11%	8.89%	0.11%	0.14%		
99941	70250	Boonville, Town of	8.00%	8.89%		0.14%		
99991		N C Assoc of Co Commissioners	8.03%		0.03%			
99999		N C League of Municipalities	8.04%		0.04%			

\* Must be recalculated annually and adjusted according to each employer's actual experience. The estimated date for liquidation as of the valuation date does not constitute a guarantee that an employer will complete the liquidation as of the estimated date.

\*\* Based on the preliminary A1 contribution rate approved by the Board based on the employer Contribution Rate Stabilization Policy.



## North Carolina Local Governmental Employees' Retirement System

### Appendix I: Prior Service Contribution Rates and Estimated Dates of Liquidation by Employer

The table below provides the contribution rates payable for the year beginning July 1, 2019 by the participating employers with an unfunded prior service liability balance at the valuation date.

Employer Code	LEO Employer Code	Employer	12/31/2017 Prior Service Liability	7/1/2019 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
90114		Mebane, Town Of	4,953,686	10.50%	6/30/2033	6/30/2026
90307		Sparta A.B.C. Board	2,585	0.53%	12/31/2028	12/31/2028
90461		Morven, Town Of	1,745	4.48%	6/30/2019	6/30/2019
90507		West Jefferson ABC Board	28,767	3.22%	6/30/2035	6/30/2028
90602		Avery County Fire Commission	241,481	6.25%	12/31/2038	12/31/2038
90651	72724	Sugar Mountain, Town Of	284,134	7.14%	3/31/2027	6/30/2024
90861	71556	Lewiston-Woodville, Town Of	3,165	1.04%	6/30/2024	6/30/2024
91009		Brunswick County Tourism Develop. Authority	9,105	1.01%	9/30/2031	6/30/2025
91013		Southeast Brunswick Sanitary District	202,644	5.81%	9/30/2039	9/30/2039
91020		Belville, Town Of	4,458	0.64%	6/30/2031	6/30/2022
91026		Town Of Navassa	279,763	7.27%	6/30/2035	6/30/2035
91047		Sunset Beach A.B.C. Board	15,761	12.14%	9/30/2019	6/30/2019
91104		Woodfin Abc Commission	9,897	1.51%	9/30/2033	6/30/2025
91147		Weaverville A.B.C. Board	6,204	0.93%	9/30/2034	6/30/2022
91202		Burke-Catawba Dist. Confinement Facility	3,985		3/31/2020	6/30/2018
91261		Connelly Springs, Town Of	620		9/30/2027	6/30/2018
91308		Cabarrus Co. Tourism Authority	53,300	0.67%	9/30/2032	6/30/2027
91321		Mount Pleasant, Town Of	64,155	6.14%	12/31/2027	6/30/2021
91457		Lenoir A.B.C. Board	58,251	9.60%	3/31/2023	6/30/2021
91681	70080	Atlantic Beach, Town Of	1,190,081	6.23%	3/31/2028	6/30/2025
91818		Western Piedmont Council Of Governments	137,726		3/31/2023	6/30/2018
92351	71178	Grover, Town Of	7,091	1.97%	9/30/2020	9/30/2020
92571		Cove City, Town Of	1,311		9/30/2026	6/30/2018
92614		Fayetteville Public Works Commission	8,368,944	5.23%	3/31/2027	6/30/2022
92661	72676	Spring Lake, Town Of	1,499,827	6.62%	9/30/2024	6/30/2024



# North Carolina Local Governmental Employees' Retirement System

## Appendix I: Prior Service Contribution Rates and Estimated Dates of Liquidation by Employer

The table below provides the contribution rates payable for the year beginning July 1, 2019 by the participating employers with an unfunded prior service liability balance at the valuation date.

Employer Code	LEO Employer Code	Employer	12/31/2017 Prior Service Liability	7/1/2019 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
92671		Falcon, Town Of	18,334	6.42%	6/30/2026	6/30/2026
92913		Thomasville Housing Authority	235,277	16.43%	6/30/2027	6/30/2024
92941		Midway, Town Of	29,483	2.29%	3/31/2038	6/30/2034
93031	70624	Cooleemee, Town Of	76,736	6.20%	9/30/2027	9/30/2027
93212		Durham Convention and Visitors Bureau	623,828	5.71%	9/30/2028	6/30/2025
93461		Walkertown, Town Of	586		12/31/2019	6/30/2018
93618		Gaston Co. Economic Dev. Commission	65,084	10.07%	12/31/2022	12/31/2022
93623		Belmont Housing Authority	733		3/31/2018	3/31/2018
93647		Cherryville A.B.C. Board	31,436	13.21%	12/31/2023	6/30/2023
94002		Maury Sanitary Land District	1,111	0.89%	3/31/2020	3/31/2020
94031		Walstonburg, Town Of	43,184	7.28%	9/30/2033	9/30/2033
94431	70362	Canton, Town Of	277,768	4.73%	6/30/2020	6/30/2020
94437		Canton A.B.C. Board	44,907	4.88%	12/31/2027	12/31/2027
95103		Benson Housing Authority	152,120	3.93%	12/31/2036	12/31/2036
95106		Archer Lodge, Town Of	3,878	0.53%	9/30/2037	6/30/2028
95113		Smithfield Housing Authority	209,206	10.68%	6/30/2023	6/30/2023
95122		Micro, Town Of	10,227	2.47%	3/31/2036	3/31/2036
95191		Wilson's Mills, Town Of	30,324	2.82%	3/31/2032	6/30/2021
95504		Lincoln County A.B.C. Board	9,480	1.14%	12/31/2028	6/30/2026
95813		Williamston Housing Authority	48,812	11.57%	3/31/2019	3/31/2019
95831		Hamilton, Town Of	4,195		9/30/2018	6/30/2018
95851	72445	Robersonville, Town Of	154,804	9.63%	12/31/2019	12/31/2019
96405		Braswell Memorial Library	40,032	1.20%	6/30/2026	6/30/2021
96503		Wilmington Housing Authority	841,994	6.35%	6/30/2024	6/30/2024
96681	72591	Seaboard, Town Of	38,833	4.71%	12/31/2025	12/31/2025
96708		Onslow Water & Sewage Authority	535,730	1.22%	12/31/2028	6/30/2027
97012		Elizabeth-Pasquotank Co Airport Authority	15,698	2.80%	9/30/2024	6/30/2021
97013		Elizabeth City-Pasquotank Co. Tourism Dev. Auth.	30,344	2.27%	6/30/2033	6/30/2031
97423		Farmville Housing Authority	116,819	6.94%	3/31/2028	6/30/2024
97840	71750	Maxton, Town Of	233,767	4.97%	6/30/2027	6/30/2023



## North Carolina Local Governmental Employees' Retirement System

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Employer Code	LEO Employer Code	Employer	12/31/2017 Prior Service Liability	7/1/2019 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
97841		Town of Parkton	20,626	2.05%	9/30/2035	9/30/2035
97871	72395	Red Springs, Town Of	553,820	6.59%	6/30/2023	6/30/2022
97913		New Reidsville Housing Authority	1,542		3/31/2019	6/30/2018
97947		Madison A.B.C. Board	18,548	3.56%	12/31/2022	12/31/2022
98002		Rowan County Tourism Development Board	398	0.09%	6/30/2026	6/30/2026
98003		Rowan County Housing Authority	87,095	4.35%	12/31/2021	6/30/2021
98008		Rowan Soil and Water Conservation District	2,252	1.04%	6/30/2023	6/30/2023
98013		Salisbury Housing Authority	158,516	6.51%	12/31/2022	6/30/2020
98102		Broad River Water Authority	3,957	0.17%	3/31/2025	6/30/2020
98313		Laurinburg Housing Authority	972,555	6.65%	12/31/2026	12/31/2026
98331	71051	Gibson, Town Of	7,438	1.59%	3/31/2025	3/31/2025
98417		Albemarle A.B.C. Board	7,348	1.29%	12/31/2023	6/30/2021
99014		Indian Trail Abc Board	37,445	1.72%	6/30/2039	6/30/2036
99022		Town Of Mineral Springs	54,824	4.70%	9/30/2034	6/30/2033
99061		Unionville, Town Of	1,836		3/31/2028	6/30/2018
99071		Weddington, Town Of	36,852	3.01%	3/31/2029	3/31/2029
99206	71882	Morrisville, Town Of	264,626		6/30/2027	6/30/2018
99207		Wake County Housing Authority	1,135,713	10.41%	12/31/2032	6/30/2031
99222		Centennial Authority, The	85		9/30/2020	6/30/2018
99321	72991	Warrenton, Town Of	595,230	6.85%	9/30/2037	6/30/2034
99508		Blowing Rock Tourism Development Authority	5,138	1.30%	3/31/2029	6/30/2021
99531	72596	Seven Devils, Town Of	215,091	4.98%	6/30/2026	6/30/2026
99613		Housing Auth. Of City Of Goldsboro	85,796		6/30/2020	6/30/2018
99661	72977	Walnut Creek, Village Of	62,435	7.06%	3/31/2026	6/30/2021
99727		Wilkesboro A.B.C. Board	81,607	17.98%	3/31/2024	6/30/2020





## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code
Aberdeen, Town of	96331	70005
Ahoskie, Town of	94611	70007
Airport Commission of Forsyth County	93402	
Alamance Commuuty Fire District	94109	
Alamance County	90101	70020
Alamance Municipal A.B.C. Board	90117	
Alamance, Village of	90151	
Albemarle A.B.C. Board	98417	
Albemarle District Jail Commission	97008	
Albemarle Regional Health Services	90096	
Albemarle Regional Library	90805	
Albemarle Regional Planning & Development Comm	92109	
Alexander County	90201	70032
Alexander County Dept of S S	90206	
Alexander County Health Dept	90203	
Alexander County Public Library	90205	
Alleghany County	90301	70035
Alliance Behavioral Healthcare	93209	
Andrews, Town of	92021	70036
Angier A.B.C. Board	94347	
Angier, Town of	94351	70038
Anson County	90401	70040
Ansonville, Town of	90451	
Apex, Town of	99271	70050
Appalachian District Health Dept	90099	
Appalachian Regional Library	99705	
Archdale, City of	97651	70063
Archer Lodge, Town of	95106	
Ashe County	90501	70065
Asheboro A.B.C. Board	97607	
Asheboro Housing Authority	97613	
Asheboro, City of	97611	70064
Asheville A.B.C. Board	91127	70072
Asheville Regional Airport Authority	91128	70074
Asheville, City of	91121	70070
Atlantic Beach, Town of	91681	70080
Aulander, Town of	90811	70082
Aurora, Town of	90721	70085
Autryville, Town of	98271	
Avery County	90601	70090

Employer	Employer Code	LEO Employer Code
Avery County Fire Commission	90602	
Avery-Mitchell-Yancey Reg Library	90605	
Ayden, Town of	97461	70100
B.H.M. Regional Library	90705	
Badin, Town of	98451	70103
Bailey, Town of	96451	70104
Bakersville, Town of	96121	70105
Bald Head Island, Village of	91091	70107
Banner Elk, Town of	90611	70110
Bay River Metro Sewerage District	96918	
Bayboro, Town of	96911	
Bayleaf Fire Department	99208	
Beaufort County	90701	70130
Beaufort County A.B.C. Board	90704	
Beaufort Housing Authority	91633	
Beaufort, Town of	91631	70145
Beech Mountain, Town of	90631	70146
Belhaven, Town of	90731	70147
Belmont Housing Authority	93623	
Belmont, City of	93621	70150
Belville, Town of	91020	
Benson Housing Authority	95103	
Benson, Town of	95141	70170
Bermuda Run, Town of	93021	
Bertie County	90801	70180
Bertie County A.B.C. Board	90804	
Bertie-Martin Regional Jail Comm	90808	
Bessemer City, City of	93671	
Bethel, Town of	97441	70157
Beulaville, Town of	93111	70160
Biltmore Forest, Town of	91111	70190
Biscoe, Town of	96231	70192
Black Creek, Town of	99831	70195
Black Mountain A.B.C. Board	91154	
Black Mountain, Town of	91151	70200
Bladen County	90901	70210
Bladenboro, Town of	90941	70215
Blowing Rock A.B.C. Board	99527	
Blowing Rock Tourism Development Authority	99508	
Blowing Rock, Town of	99521	70220



## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code
Blue Ridge Fire Department	94532	
Boiling Spring Lakes A.B.C. Board	91077	
Boiling Spring Lakes, City of	91071	70225
Boiling Springs, Town of	92331	70230
Boone, Town of	99511	70240
Boonville, Town of	99941	70250
Braswell Memorial Library	96405	
Brevard A.B.C. Board	98817	
Brevard, City of	98811	70260
Bridgeton, Town of	92561	
Broad River Water Authority	98102	
Broadway, Town of	95321	70265
Brookford, Town of	91861	70270
Brunswick Co Dept of Social Services	91006	
Brunswick Co Health Dept	91003	
Brunswick County	91001	70280
Brunswick County A.B.C. Board	91004	
Brunswick County Tourism Authority	91009	
Brunswick Regional Water and Sewer H2GO	91042	
Brunswick, Town of	92421	
Bryson City A.B.C. Board	98717	
Bryson City, Town of	98711	70285
Buncombe County	91101	70290
Bunn A.B.C. Board	93537	
Bunn, Town of	93531	70295
Burgaw, Town of	97111	70300
Burke Co Dept of Social Services	91206	
Burke Co Health Dept	91203	
Burke County	91201	70310
Burke County Tourism Dev. Authority	91208	
Burke-Catawba Dist Confinment	91202	
Burlington, City of	90111	70320
Burnsville, Town of	90011	70330
Butner, Town of	93931	
Cabarrus Co Public Health Auth	91306	
Cabarrus County	91301	70340
Cabarrus County Tourism Authority	91308	
Cajah's Mountain, Town of	91461	
Calabash A.B.C. Board	91007	
Calabash, Town of	91010	

Employer	Employer Code	LEO Employer Code
Calbemarle, City of	98411	70030
Caldwell County	91401	70350
Calypso, Town of	93171	
Camden County	91501	70357
Camden County A.B.C. Board	91504	
Cameron, Town of	96312	70358
Candor, Town of	96241	70360
Canton A.B.C. Board	94437	
Canton, Town of	94431	70362
Cape Carteret, Town of	91671	70365
Cape Fear Council of Governments	91008	
Cape Fear Public Transportation Authority	96512	
Cape Fear Public Utility Authority	96507	
Cape Fear Regional Jetport	91015	
Carolina Beach, Town of	96521	70375
Carolina Shores Town of	91024	
Carrboro, Town of	96821	70372
Carteret County	91601	70380
Carteret County A.B.C. Board	91604	70385
Carthage, Town of	96391	70390
Cary, Town of	99221	70400
Caswell Beach, Town of	91051	70405
Caswell Co Dept of Social Services	91706	
Caswell County	91701	70415
Caswell County A.B.C. Board	91704	
Catawba County	91801	70430
Catawba County A.B.C. Board	91804	70440
Catawba, Town of	91881	70441
Cedar Point, Town of	91691	
Centennial Authority	99222	
Centralina Council Of Governments	96009	
Chadbourne, Town of	92441	70450
Chapel Hill, Town of	96811	70470
Charlotte Firemen's Ret Sys	96018	
Charlotte Housing Authority	96003	
Charlotte Mecklenburg Public Library	96005	
Charlotte Regional Visitors Authority	96012	
Charlotte, City of	96011	70480
Chatham Co Housing Auth	91903	
Chatham County	91901	70490



## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code
Chatham County A.B.C. Board	91904	
Cherokee County	92001	70500
Cherryvil A.B.C. Board	93647	
Cherryville, City of	93641	70520
China Grove, Town of	98041	70522
Choanoke Public Transportation Auth	96612	
Chocowinity, Town of	90751	70525
Chowan County	92101	70530
Chowan County A.B.C. Board	92104	
Claremont, City of	91821	70535
Clarkton, Town pf	90931	70537
Clay County	92201	70538
Clay County A.B.C. Board	92214	
Clayton, Town of	95131	70540
Clemmons Fire Department	93442	
Clemmons, Village of	93441	
Cleveland County	92301	70550
Cleveland County Water	92302	
Cleveland, Town of	98091	70552
Clinton A.B.C. Board	98218	
Clinton, City of	98211	70555
Clyde, Town of	75750	
Coastal Carolina Regional Airport	92506	
Coastal Regional Solid Waste Mngt Auth	92508	
Coats, Town of	94341	70570
Cofield, Town of	94641	
Colerain, Town of	90813	70575
Colfax Volunteer Fire Department	94168	
Columbia, Town of	98911	
Columbus A.B.C. Board	97527	
Columbus County	92401	70580
Columbus, Town of	97521	70581
Concord A.B.C. Board	91317	
Concord, City of	91311	70590
Connelly Springs, Town of	91261	
Conover, Town of	91851	70610
Contennea Metropolitan Sewerage Dist	97408	
Conway, Town of	96641	70620
Cooleemee A.B.C. Board	93027	
Cooleemee, Town of	93031	70624

Employer	Employer Code	LEO Employer Code
Cornelius, Town of	96051	70625
Cove City, Town of	92571	
Cramerton A.B.C. Board	93604	
Cramerton, Town of	93631	70640
Craveb-Pamlico-Carteret Regional Library	92505	
Craven Co A.B.C. Bd	92504	
Craven County	92501	70650
Creedmoor, City of	93921	70660
Creswell, Town of	99431	
Cumberland Co A.B.C. Board	92604	70685
Cumberland County	92601	70680
Currituck Co A.B.C. Board	92704	
Currituck County	92701	70700
Dallas, Town of	93651	70705
Dare County	92801	70720
Dare County A.B.C. Board	92804	70721
Dare County Tourism Board	92802	
Davidson County	92901	70723
Davidson, Town of	96081	70724
Davie County	93001	70725
Davie Soil and Water Conservation Dist	93009	
Denton, Town of	92921	70730
Dobson A.B.C. Bd	98627	
Dobson, Town of	98621	70735
Drexel, Town of	91221	70745
Duck, Town of	92861	70755
Dunn A.B.C. Board	94317	
Dunn Housing Authority	94313	
Dunn, City of	94311	70760
Duplin County	93101	70770
Duplin County Toursim Development Authority	93103	
Durham Convention & Visitors Bureau	93212	
Durham County	93201	70790
Durham County A.B.C. Board	93204	70800
Durham Hwy Fire Protection Assoc	99212	
Durham, City of	93211	70780
East Albemarle Regional Library	97005	
East Bend, Town of	99931	70805
East Spencer Housing Authority	98023	
East Spencer, Town of	98021	70812



## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code
Eastern Band of Cherokee Indians	70505	70505
Eastern Carolina Reg'l Housing Auth	99603	
Eastern Wayne Sanitary Dist	99610	
Eastover, Town of	92681	
Eastpointe Human Services	93108	
Eden A.B.C. Board	97957	
Eden, City of	97951	70815
Edenton, Town of	92111	70817
Edgecombe County	93301	70820
Edgecombe County A.B.C. Board	93304	
Edgecombe County Memorial Library	93305	
Electricities of NC	99210	
Elizabeth A.B.C. Board	90917	
Elizabeth City	97011	70840
Elizabeth City Pasquotank County TDA	97013	
Elizabeth City-Pasquotank Co Airport Auth	97012	
Elizabeth City-Pasquotank Co Industrial Development	97018	
Elizabethtown, Town of	90911	70850
Elk Park, Town of	90641	70860
Elkin, Town of	98641	70855
Ellenboro, Town of	98161	
Ellerbe, Town of	97731	
Elm City, Town of	99851	70870
Elon, Town of	90131	70880
Emerald Isle, Town of	91651	70890
Enfield, Town of	94211	70895
Erwin, Town of	94331	70900
Fair Bluff, Town of	92431	70908
Fairmont Housing Authority	97823	
Fairmont, Town of	97821	70910
Faison, Town of	93141	70920
Faith, Town of	98081	
Falcon Town of	92671	
Farmville Housing Authority	97423	
Farmville, Town of	97421	70930
Fayetteville Metropolitan Housing Auth	92613	
Fayetteville Public Works Commission	92614	
Fayetteville, City of	92611	70940
First Craven Sanitary Dist	92502	
Flat Rock, Village of	94531	

Employer	Employer Code	LEO Employer Code
Fletcher A.B.C. Board	94547	
Fletcher, Town of	94541	70943
Fontana Regional Library	95005	
Forest City A.B.C. Board 168	98107	
Forest City Housing Authority	98113	
Forest City, Town of	98111	70950
Fork Township Sanitary Dist	99602	
Forsyth County	93401	70951
Four Oaks, Town of	95151	70954
Foxfire Village	96381	70953
Franklin County	93501	70960
Franklin, Town of	95611	70955
Franklin A.B.C Board	93517	
Franklinton, Town of	93511	70970
Fremont, Town of	99631	70980
Fuquay-Varina, Town of	99261	70990
Garland, Town of	98241	71000
Garner Fire Dept	99252	
Garner, Town of	99251	71010
Garysburg, Town of	96631	71020
Gaston County	93601	71030
Gaston County Economic Dev Commission	93618	
Gaston, Town of	96651	71032
Gastonia A.B.C. Board	93617	
Gastonia, City of	93611	71040
Gates County	93701	71050
Gates County A.B.C. Board	93704	71052
Gibson, Town of	98331	71051
Gibsonville A.B.C. Board	94157	
Gibsonville, Town of	94151	71060
Glen Alpine, Town of	91241	71065
Goldsboro Housing Authority	99613	
Goldsboro, City of	99611	71070
Goldston-Gulf Sanitary District	91908	
Graham Co Health Dept	93803	
Graham County	93801	71085
Graham County Dept of S S	93806	
Graham, City of	90121	71080
Granite Falls A.B.C. Board	91417	
Granite Falls, Town of	91411	71090



## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code
Granite Quarry, Town of	98061	71105
Granville Co A.B.C. Bd	93904	
Granville County	93901	71110
Granville County Hospital	93906	
Granville-Vance Public Health	93908	
Greater Statesville Development Corp	94908	
Green Level, Town of	90161	
Greene County	94001	71130
Greene County A.B.C. Board	94004	
Greensboro A.B.C. Bd	94117	71150
Greensboro, City of	94111	71140
Greenville Housing Authority	97413	
Greenville Utilities Commission	97412	
Greenville, City of	97411	71160
Grifton, Town of	97431	71170
Grimesland, Town of	97471	
Grover, Town of	92351	71178
Guilford County	94101	71180
Guilford Fire District #13 Inc	94118	
Guil-Rand Fire Department	94102	
Halifax County	94201	71200
Halifax County A.B.C. Board	94204	
Halifax County Tourism Development Authority	94205	
Hamilton, Town of	95831	
Hamlet A.B.C. Board	97717	
Hamlet, City of	97721	71220
Harnett County	94301	71230
Harrisburg, Town of	91441	
Havelock, City of	92531	71240
Haywood County	94401	71250
Haywood County Tourism Development Authority	94403	
Henderson County	94501	71275
Henderson, City of	99111	71270
Hendersonville A.B.C. Bd	94517	
Hendersonville, City of	94511	71280
Hertford A.B.C. Board	97217	71305
Hertford County	94601	71310
Hertford County A.B.C. Board	94604	71320
Hertford County Public Health Authority	94606	
Hertford Housing Auth	97213	

Employer	Employer Code	LEO Employer Code
Hertford, Town of	97211	71300
Hickory Conover Tourism Dev Auth	91812	
Hickory Public Housing Authority	91813	
Hickory, City of	91811	71330
High Country A.B. C. Board	90617	
High Point A.B.C. Bd	94127	
High Point, City of	94121	71340
Highlands A.B.C. Board	95617	
Highlands, Town of	95621	71335
Hildebran, Town of	91251	
Hillsborough, Town of	96831	71360
Hobgood, Town of	94251	
Hoke County	94701	71370
Hoke County A.B.C. Board	94704	
Holden Beach, Town of	91014	71375
Holly Ridge Housing Authority	96733	
Holly Ridge, Town of	96731	71380
Holly Springs, Town of	99202	71385
Hookerton, Town of	94011	
Hope Mills, Town of	92631	71390
Hot Springs Housing Authority	95733	
Hudson, Town of	91431	71395
Huntersville, Town of	96041	71397
Hyde County	94801	71400
Hyde County A.B.C. Board	94804	
Indian Beach, Town of	91661	71405
Indian Trail A.B.C. Board	99014	
Indian Trail, Town of	99051	
Iredell County	94901	71420
Isothermal Planning and Dev Comm	98109	
J C Holiday Mem Library	98205	
Jackson County	95001	71430
Jackson County A.B.C. Board	95017	
Jackson, Town of	96661	71435
Jacksonville, City of	96711	71440
Jamestown, Town of	94131	71442
Jamesville, Town of	95841	
Jefferson, Town of	90511	71447
Johnston County	95101	71460
Johnston County A.B.C. Board	95104	



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Employer	Employer Code	LEO Employer Code
Johnston Health Center	95110	
Jones County	95201	71465
Jones County A.B.C. Board	95204	
Jonesville, Town of	99921	71467
Junaluska Sanitary District	94408	
Kannapolis, City of	91331	71468
Kenansville A.B.C. Board	93127	
Kenansville, Town of	93121	71469
Kenly, Town of	95171	71472
Kernersville, Town of	93421	71470
Kerr Area Transportation Authority	99110	
Kerr-Tar Regional Council of Govts	99109	
Kill Devil Hills, Town of	92821	71480
King, City of	98521	71487
Kings Mountain A.B.C. Board	92327	
Kings Mountain, City of	92321	71490
Kinston Housing Authority	95413	
Kinston, City of	95411	71500
Kinston-Lenoir Co Pub Library	95415	
Kitty Hawk, Town of	92851	71507
Knightdale, Town of	99291	71510
Kure Beach, Town of	96541	71515
Lagrange, Town of	95431	71517
Lake Lure, Town of	98131	71518
Lake Waccamaw A.B.C. Board	92427	
Lake Waccamaw, Town of	92461	71519
Landis, Town of	98051	71522
Land-of-Sky Regional Council	91102	
Laurel Park A.B.C. Board	94527	
Laurel Park, Town of	94521	71525
Laurinburg Housing Authority	98313	
Laurinburg, City of	98311	71530
Laurinburg-Maxton Airport Commission	98308	
Lawndale, Town of	92341	71532
Lee County	95301	71535
Leland, Town of	91002	71540
Lenoir A.B.C. Board	91457	
Lenoir County	95401	71550
Lenoir County A.B.C. Board	95404	
Lenoir Housing Authority	91423	

Employer	Employer Code	LEO Employer Code
Lenoir, City of	91451	71552
Lewiston Woodville, Town of	90861	71556
Lewisville, Town of	93451	
Lexington A.B.C. Board	92917	
Lexington, City of	92931	71570
Liberty A.B.C. Board	97637	
Liberty, Town of	97631	71582
Lilesville, Town of	90421	71584
Lillington, Town of	94321	71585
Lincoln County	95501	71590
Lincoln County A.B.C. Board	95504	
Lincolnton A.B.C. Board	95517	
Lincolnton Housing Authority	95513	
Lincolnton, City of	95511	71600
Linden, Town of	92651	
Littleton, Town of	94261	71615
Locust A.B.C. Board	98404	
Locust, City of	98431	71620
Longview, Town of	91841	71640
Louisburg A.B.C. Board	93527	
Louisburg, Town of	93521	71650
Lowell, City of	93661	71655
Lower Cape Fear Water & Sewer Auth	96508	
Lucama, Town of	99841	71660
Lumber River Council of Governments	97802	
Lumberton A.B.C. Board	97817	
Lumberton Airport Comm	97818	
Lumberton, City of	97811	71670
Macclesfield, Town of	93341	
Macon County	95601	71680
Madison A.B.C. Board	97947	
Madison County	95701	71684
Madison, Town of	97941	71683
Madison-Mayodan Recreation Comm	97948	
Maggie Valley A.B.C. Board	94427	
Maggie Valley Sanitary Dist	94428	
Maggie Valley, Town of	94421	71685
Magnolia, Town of	93191	71690
Maiden, Town of	91831	71700
Manteo, Town of	92831	71705



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Employer	Employer Code	LEO Employer Code
Marion A.B.C. Board	95917	
Marion, Town of	95911	71710
Mars Hill, Town of	95711	71718
Marshall, Town of	95721	71711
Marshville, Town of	99021	71720
Martin Co Travel & Tourism Auth	95802	
Martin County	95801	71730
Martin County A.B.C. Board	95804	
Martin-Tyrrell-Washington Dist Health Dept	90092	
Marvin, Village of	99081	
Matthews, Town of	96071	71740
Maury Sanitary Land District	94002	
Maxton A.B.C. Board	97847	
Maxton, Town of	97840	71750
Mayodan, Town of	97921	71755
Maysville, Town of	95221	71745
Mcadenville, Town of	93610	71760
McDowell County	95901	71762
Mebane, City of	90114	
Mecklenburg County	96001	71770
Mecklenburg County A.B.C. Board	96004	71780
Mecklenburg Emer Med Svcs Agcy	96008	
Metro Sewerage Dist of Buncombe County	91108	
Mi Connection Communications System	94941	
Micro, Town of	95122	
Mid-Carolina Council Of Governments	92607	
Middlesex, Town of	96431	71785
Mideast Commission	90709	
Midland, Town of	91341	
Midway, Town of	92941	
Mills River, Town of	94551	
Mineral Springs, Town of	99022	
Mint Hill, Town of	96031	71775
Misenheimer, Village of	98414	71786
Mitchell County	96101	71788
Mitchell Soil & Water Conservation Dist	96102	
Mocksville, Town of	93011	71790
Monroe A.B.C. Board	99017	
Monroe Housing Authority	99013	
Monroe, City of	99011	71800

Employer	Employer Code	LEO Employer Code
Montgomery County	96201	71815
Montgomery-Municipal A.B.C. Board	96204	
Montreat, Town of	91161	71820
Moore County	96301	71830
Moore County A.B.C. Board	96304	71840
Moore County Airport Authority	96310	
Moore County Tourism Development Authority	96305	
Mooresville A.B.C. Board	94927	
Mooresville Housing Authority	94923	
Mooresville, City of	94921	71850
Morehead City, Town of	91611	71860
Morganton A.B.C. Board	91217	71880
Morganton Housing Authority	91233	
Morganton, City of	91231	71870
Morrisville, Town of	99206	71882
Morven, Town of	90461	
Mount Airy Alcoholic Board of Control	98637	
Mount Airy, City of	98631	71910
Mount Gilead, Town of	96251	71920
Mount Holly, City of	93691	71930
Mount Olive, Town of	99621	71940
Mount Pleasant, Town of	91321	
Mt Olive Housing Authority	99623	
Mt Pleasant A.B.C. Board	91327	
Murfreesboro, Town of	94621	71970
Murphy A.B.C. Board	92017	
Murphy, Town of	92011	71975
N C Assoc of Co Commissioners	99991	
N C League of Municipalities	99999	
Nags Head, Town of	92811	71980
Nantahala Regional Library	92005	
Nash County	96401	71990
Nash County A.B.C. Board	96404	72000
Nashville, Town of	96421	71995
Navassa, Town of	91026	
Neuse Regional Library	95405	
Neuse Regional Library-Greene County	94005	
Neuse Regional Library-Jones County	95205	
Neuse River Council of Governments	92507	
New Bern, City of	92511	72020





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Employer	Employer Code	LEO Employer Code
New Edenton Housing Auth	92113	
New Hanover Airport Auth	96502	72024
New Hanover County	96501	72030
New Hanover County A.B.C. Board	96504	
New London, Town of	98471	
New Reidsville Housing Auth	97913	
Newland, Town of	90621	72032
Newport, Town of	91621	72035
Newton Grove, Town of	98231	72050
Newton, City of	91871	72040
Norlina, Town of	99311	72055
North Topsail Beach, Town of	96751	72789
North Wilkesboro A.B.C. Board	99717	
North Wilkesboro, Town of	99711	72105
Northampton County	96601	72060
Northampton County A.B.C. Board	96604	
Northwest, City of	91012	72076
Northwestern Regional Library	90305	
Norwood A.B.C. Bd	98427	
Norwood, Town of	98421	72110
Oak City, Town of	95821	
Oak Island A.B.C. Bd	91027	
Oak Island, Town of	91021	71630
Oak Ridge, Town of	94161	
Oakboro, Town of	98441	72120
Ocean Isle Beach A.B.C.	91067	
Ocean Isle Beach, Town of	91061	72135
Ocracoke Sanitary Dist	94812	
Old Fort, Town of	95921	72140
Onslow County	96701	72150
Onslow County A.B.C. Board	96704	72160
Onslow Water & Sewer Authority	96708	
Orange County	96801	72170
Orange County A.B.C. Board	96804	
Orange Water and Sewer Authority	96808	
Oriental, Town of	96912	72195
Oxford Housing Authority	93913	
Oxford, City of	93911	72200
Pamlico County	96901	72210
Parkton, Town of	97841	

Employer	Employer Code	LEO Employer Code
Partners Behavioral Health Management	93609	
Pasquotank Co A.B.C. Board	97004	
Pasquotank County	97001	72220
Pasquotank-Camden Ambulance Service	97002	
Pasquotank-Camden Library	97015	
Peachland, Town of	90441	
Pembroke Housing Authority	97853	
Pembroke, Town of	97851	72228
Pender County	97101	72235
Pender County A.B.C. Board	97104	
Perquimans County	97201	72245
Person Co A.B.C. Bd	97304	
Person County	97301	72250
Pettigrew Regional Library	99405	
Piedmont Triad Airport Authority	72265	72265
Piedmont Triad Reg Water Auth	94112	
Piedmont Triad Regional Council	93406	
Pikeville, Town of	99651	72270
Pilot Mountain A.B.C. Board	98607	
Pilot Mountain, Town of	98611	72280
Pine Knoll Shores, Town of	91641	72290
Pine Level, Town of	95161	72295
Pinebluff, Town of	96361	72285
Pinecroft-Sedgefield Fire Dist Inc	94108	
Pinehurst, Village of	96351	72287
Pinetops, Town of	93331	72296
Pineville, Town of	96021	72300
Pink Hill, Town of	95421	72305
Pitt County	97401	72310
Pitt County A.B.C. Board	97404	72320
Pitt-Greenville Conv & Vistors	97402	
Pittsboro, Town of	91921	72330
Pleasant Garden Fire Dept	95908	
Plymouth Housing Authority	99413	
Plymouth, Town of	99411	72335
Polk County	97501	72340
Polkton, Town of	90431	72345
Pollocksville, Town of	95211	
Princeton, Town of	95181	72349
Princeville, Town of	93351	72351





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Employer	Employer Code	LEO Employer Code
Public Library of Johnston Co and Smithfield	95105	
Raeform, Town of	94711	72355
Raleigh Housing Authority	99213	
Raleigh, City of	99211	72360
Raleigh-Durham Airport Authority	99218	72370
Ramseur, Town of	97641	72375
Randleman A.B.C. Board	97627	
Randleman Housing Authority	97623	
Randleman, City of	97621	72377
Randolph County	97601	72380
Ranlo, Town of	93681	72390
Red Springs A.B.C. Board	97877	
Red Springs, Town of	97871	72395
Region D Council of Governments	99502	
Reidsville A.B.C. Board	97917	
Reidsville, City of	97911	72400
Rich Square, Town of	96611	72432
Richlands, Town of	96741	72420
Richmond County	97701	72430
River Bend, Town of	92541	72435
Roanoke Rapids Sanitary District	94209	
Roanoke Rapids, City of	94221	72440
Robbins, Town of	96341	72443
Robbinsville, Town of	93821	
Robersonville Authority	95853	
Robersonville, Town of	95851	72445
Robeson County	97801	72450
Robeson County Housing Authority	97803	
Robeson County Public Library	97805	
Rockingham A.B.C. Board	97727	
Rockingham Authority	97713	
Rockingham County	97901	72470
Rockingham, City of	97711	72460
Rockwell, Town of	98071	72475
Rocky Mount, City of	93321	72480
Rocky Mount-Wilson Airport Authority	93323	
Rocky Mt Housing Authority	93333	
Rolesville, Town of	99203	72485
Roper, Town of	99421	
Rose Hill, Town of	93161	72487

Employer	Employer Code	LEO Employer Code
Roseboro A.B.C. Board	98237	
Roseboro, Town of	98261	72486
Rowan Co Housing Authority	98003	
Rowan Co Soil & Water Conv Dist	98008	
Rowan County	98001	72490
Rowan County A.B.C. Board	98004	72500
Rowen Convention & Visitors Bureau	98002	
Rowland, Town of	97861	72510
Roxboro, City of	97311	72520
Rural Hall, Town of	93431	
Rutherford College, Town of	91214	
Rutherford County	98101	72530
Rutherford Polk McDowell Dist Brd of Health	98103	
Rutherfordton A.B.C. Board	98147	
Rutherfordton, Town of	98141	72535
Salemburg, Town of	98221	72547
Salisbury Housing Authority	98013	
Salisbury, City of	98011	72550
Saluda, City of	97531	72560
Sampson County	98201	72563
Sandhill Regional Library	97705	
Sandhills Center	96318	
Sanford A.B.C. Board	95317	
Sanford, City of	95311	72565
Sawmills, Town of	91421	
Scotland County	98301	72580
Scotland County A.B.C. Board	98304	
Scotland Neck, Town of	94241	72590
Seaboard, Town	96681	72591
Seagrove, Town	72593	72593
Selma Housing Authority	95123	
Selma, Town of	95121	72594
Seven Devils, Town of	99531	72596
Severn, Town of	96671	72595
Shallotte A.B.C. Board	91057	
Shallotte, Town of	91081	72597
Sharpsburg, Town of	96461	72600
Shelby A.B.C. Board	92317	
Shelby, City of	92311	72610
Sheppard Memorial Library	97405	



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Employer	Employer Code	LEO Employer Code
Siler City A.B.C. Board	91917	
Siler City, Town of	91911	72625
Simpson, Village of	97481	72626
Skyland Vol Fire Dept	91138	
Smithfield Housing Authority	95113	
Smithfield, Town of	95111	72630
Snow Hill, Town of	94021	
South Eastern Economic Development Comm	90918	
South Granville Water and Sewer Authority	93910	
Southeast Brunswick Sanitary District	91013	
Southern Pines, Town of	96311	72640
Southern Shores, Town of	92841	72645
Southern Wayne Sanitary District	99609	
Southport A.B.C. Board	91017	
Southport, City of	91011	72650
Southwestern NC Planning & Econ Dev Comm	95008	
Sparta A.B.C. Board	90307	
Sparta, Town of	72657	72657
Spencer, Town of	98031	72665
Spindale, Town of	98121	72670
Spring Hope, Town of	96411	72675
Spring Lake, Town of	92661	72676
Spruce Pine, Town of	96111	72678
St James, Town of	91032	
St Paul's Brd of Alcoholic CTL	97837	
St Pauls, Town of	97831	72540
Stallings, Town of	96061	72679
Stanfield, Town of	98481	72680
Stanley, Town of	93602	72682
Stanly County	98401	72683
Stantonsburg, Town of	99821	72684
Star, Town of	96211	72685
Statesville A.B.C. Board	94917	72710
Statesville, City of	94911	72700
Stedman, Town of	92621	72715
Stokes County	98501	72720
Stoneville, Town of	97931	72721
Stovall, Town of	93914	
Sugar Mountain, Town of	90651	72724
Summerfield Fire District	94172	

Employer	Employer Code	LEO Employer Code
Summerfield, Town of	94171	
Sunset Beach A.B.C. Board	91047	
Sunset Beach, Town of	91041	72723
Surf City, Town of	97131	72725
Surry County	98601	72730
Swain County	98701	72740
Swansboro, Town of	96721	72745
Sylva, Town of	95011	72750
Tabor City, Town of	92451	72760
Tarboro Redevelopment Commission	93317	
Tarboro, Town of	93311	72770
Taylorsville, Town of	90211	72775
Taylortown, Town of	96302	72776
Teachey, Town of	93181	
Thomasville A.B.C. Board	92914	
Thomasville Housing Authority	92913	
Thomasville, City of	92911	72780
Tobaccoville, Village of	93471	
Toe River Health District	90098	
Topsail Beach, Town of	97121	72790
Town of Haw River	90141	71245
Transylvania County	98801	72800
Trent Woods, Town of	92521	72810
Triad Municipal A.B.C. Board	93417	73140
Triangle J Council of Governments	93219	
Trillium Health Resources	92513	
Trinity, City of	97661	
Troutman, Town of	94931	72815
Troy, Town of	96221	72822
Tryon, Town of	97511	72823
Tuckaseegee Water Authority	95002	
Turkey, Town of	98251	
Tyrrell Co A.B.C. Board	98904	
Tyrrell County	98901	72825
Union County	99001	72830
Unionville, Town of	99061	
Upper Coastal Plain Council of Governements	93309	
Valdese Housing Authority	91213	
Valdese, Town of	91211	72883
Vance County	99101	72890



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Vance County A.B.C. Bd	99104	
Vanceboro, Town of	92551	72910
Vass, Town of	96321	72920
Vaya Health	95009	
Wade, Town of	92641	
Wadesboro A.B.C. Board	90417	
Wadesboro Housing Authority	90413	
Wadesboro, Town of	90411	72930
Wagram, Town of	98321	72935
Wake County	99201	72940
Wake County A.B.C. Board	99204	72950
Wake County Housing Authority	99207	
Wake Forest, Town of	99281	72960
Walkertown, Town of	93461	
Wallace A.B.C. Bd	93157	
Wallace, Town of	93151	72970
Walnut Cove A.B.C. Board	98517	
Walnut Cove, Town of	98511	72975
Walnut Creek, Village of	99661	72977
Walstonburg, Town of	94031	
Warren County	99301	72980
Warren County A.B.C. Board	99304	72979
Warrenton, Town of	99321	72991
Warsaw A.B.C. Board	93137	
Warsaw, Town of	93131	72981
Washington County	99401	72985
Washington County A.B.C. Board	99404	
Washington Park, Town of	90741	
Washington, City of	90711	72990
Watauga County	99501	72983
Watauga County District Tourism Dev Auth	99509	
Water & Sewer Auth of Cabarrus County	91302	
Waxhaw A.B.C. Board	99047	
Waxhaw, Town of	99041	72995
Wayne County	99601	72997
Wayne County A.B.C. Board	99604	
Waynesville A.B.C. Board	94412	73015
Waynesville, Town of	94411	73010
Weaverville A.B.C. Board	91147	
Weaverville, Town of	91141	73016

Employer	Employer Code	LEO Employer Code
Weddington, Town of	99071	
Weldon, Town of	94231	73017
Wendell, Town of	99231	73020
Wesley Chapel, Village of	99091	
West Buncombe Fire Dept	91120	
West Columbus A.B.C. Board	92444	
West Jefferson A.B.C. Board	90507	
West Jefferson, Town of	90521	73025
Westarea Volunteer Fire Dept	92602	
Western Carteret Interlocal Cooperation Agency	91608	
Western NC Regional Air Quality	91107	
Western Piedmont Council of Gvmts	91818	
Western Piedmont Regional Transit Authority	91819	
Whispering Pines, Village of	96371	73040
Whitakers, Town of	96441	73045
White Lake, Town of	90921	73050
Whiteville A.B.C. Board	92417	
Whiteville Housing Authority	92403	
Whiteville, City of	92411	73060
Wilkes County	99701	73075
Wilkesboro A.B.C. Board	99727	
Wilkesboro, Town of	99721	73072
Williamston Housing Authority	95813	
Williamston, Town of	95811	73080
Wilmington Housing Authority	96503	
Wilmington, City of	96531	73090
Wilson Cemetary Commission	99818	
Wilson County	99801	73110
Wilson County A.B.C. Board	99804	
Wilson County Tourism Development Auth	99802	
Wilson Economic Dev Council	99812	
Wilson, City of	99811	73100
Wilson's Mills, Town of	95191	
Windsor, Town of	90812	73122
Winfall, Town of	97221	73124
Wingate, Town of	99031	73125
Winston-Salem Housing Authority	93413	
Winston-Salem, City of	93411	73130
Winterville, Town of	97451	73150
Winton, Town of	94631	73155



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Employer	Employer Code	LEO Employer Code
Woodfin A.B.C. Commission	91104	
Woodfin Sanitary Water and Sewer Dist	91109	
Woodfin, Town of	91171	73160
Woodland, Town of	96621	73162
Wrightsville Beach, Town of	96511	73165
Yadkin County	99901	73170
Yadkin Valley A.B.C. Board	98604	

Employer	Employer Code	LEO Employer Code
Yadkin Valley Sewer Authority	98608	
Yadkinville, Town of	99911	73180
Yancey County	90001	73190
Yancey Soil & Water Cons	90002	
Yanceyville, Town of	91719	73192
Youngsville, Town of	93541	73200
Zebulon, Town of	99241	73210