



**October 26, 2017**

Local Governmental Employees' Retirement System  
Principal Results of Actuarial Valuation  
as of December 31, 2016

**Board of Trustees Meeting  
David Driscoll and Mike Ribble**

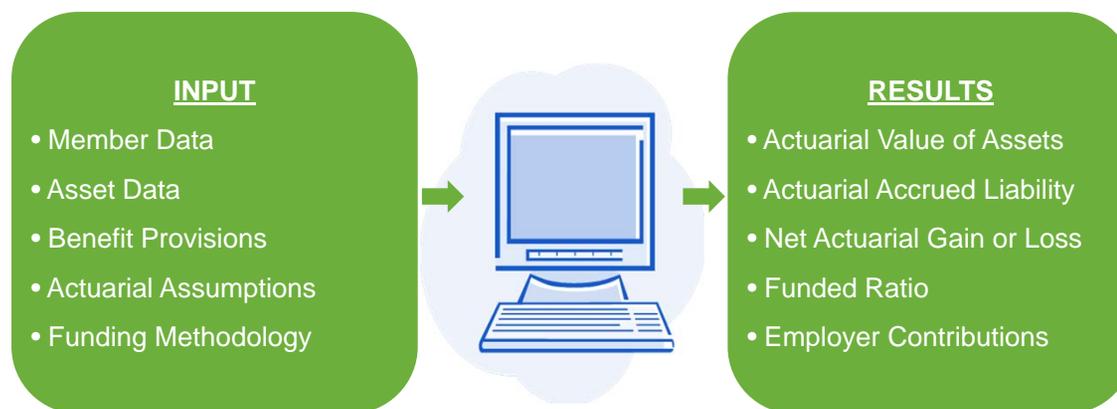
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# Purpose of the Annual Actuarial Valuation

- 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 following diagram 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.

# Valuation Input Membership Data



Number as of	12/31/2016	12/31/2015
Active members	126,647	124,974
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	63,682	59,289
Retired members and survivors of deceased members currently receiving benefits	<u>65,930</u>	<u>63,110</u>
Total	256,259	247,373

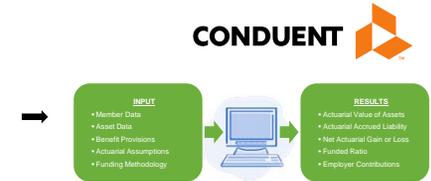
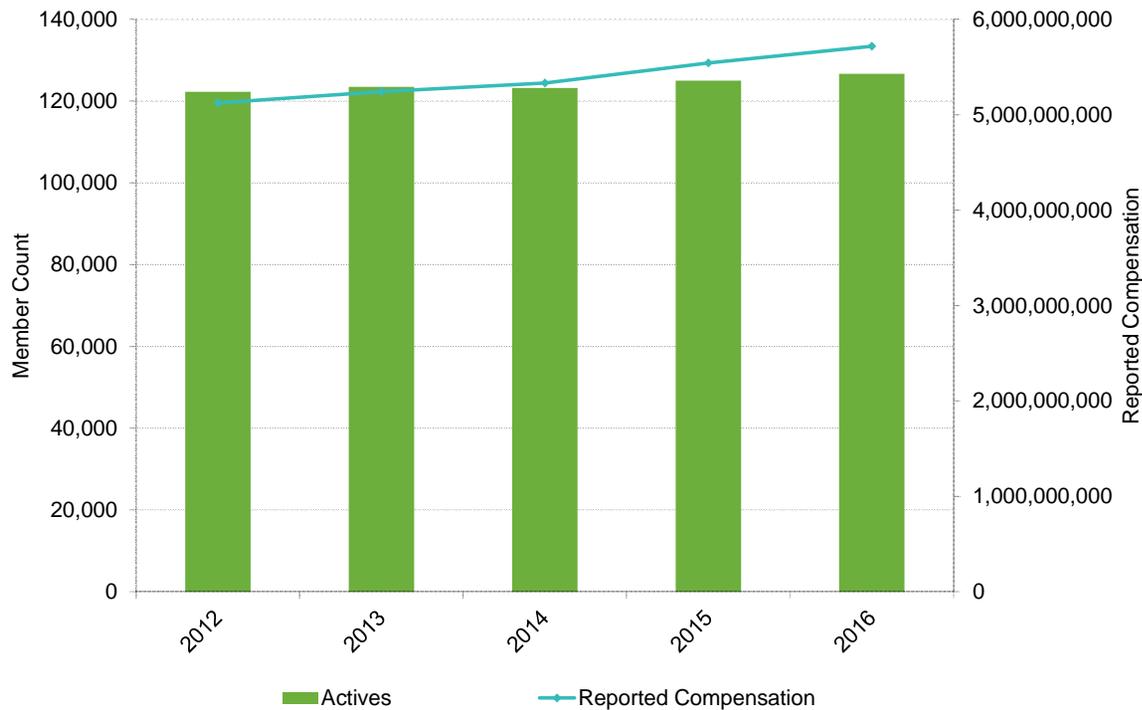
The number of active members increased by 1.3% from the previous valuation date. The increase in active members results in more benefits accruing, but also more contributions supporting the system.

The number of retired members and survivors of deceased members currently receiving benefits increased by 4.5% 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 of the actuarial report.

# Valuation Input

## Membership Data: Active Members



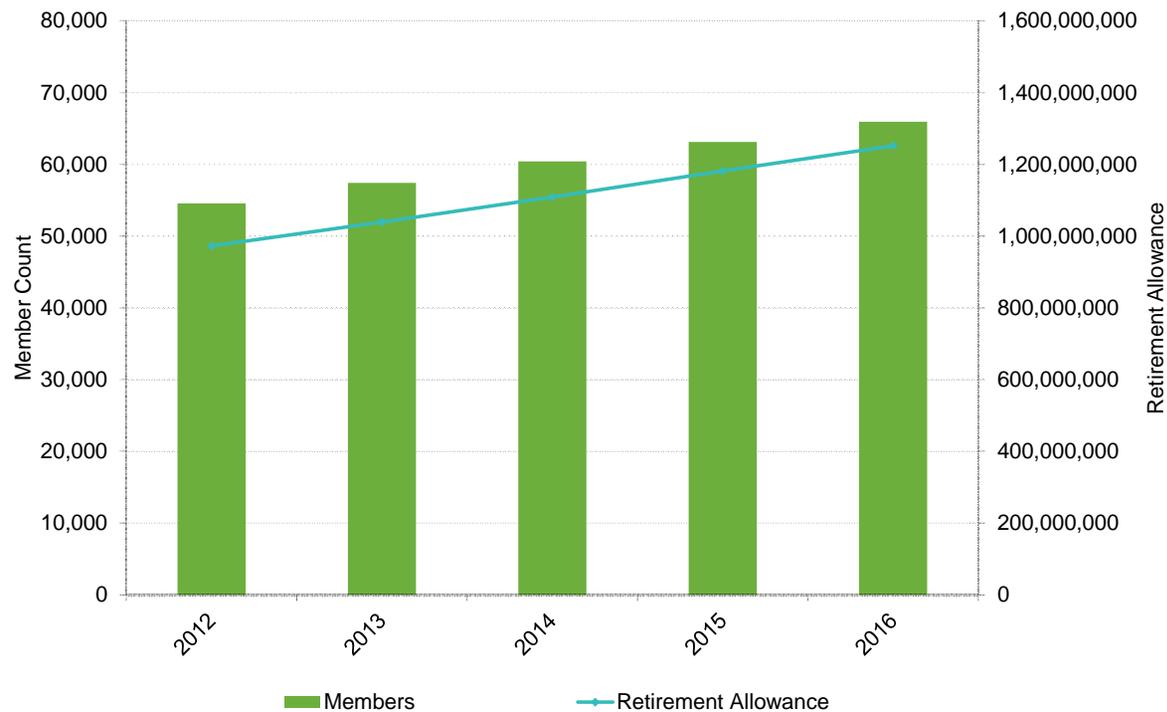
Reported compensation has increased by 3.2% and has slightly grown over the past five years. Covered payroll is expected to increase by approximately 3% annually in the future.

Payroll that is increasing faster than we assume results in more benefits accruing than we anticipate, but also more contributions supporting the system.

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

## Valuation Input

# Membership Data: Retired Members and Survivors of Deceased Members

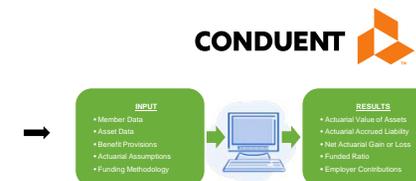


The number of retired members and survivors of deceased members and the benefits paid to these members has been increasing steadily, as expected based on plan assumptions.

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

## Valuation Input

# Asset Data: Market Value of Assets



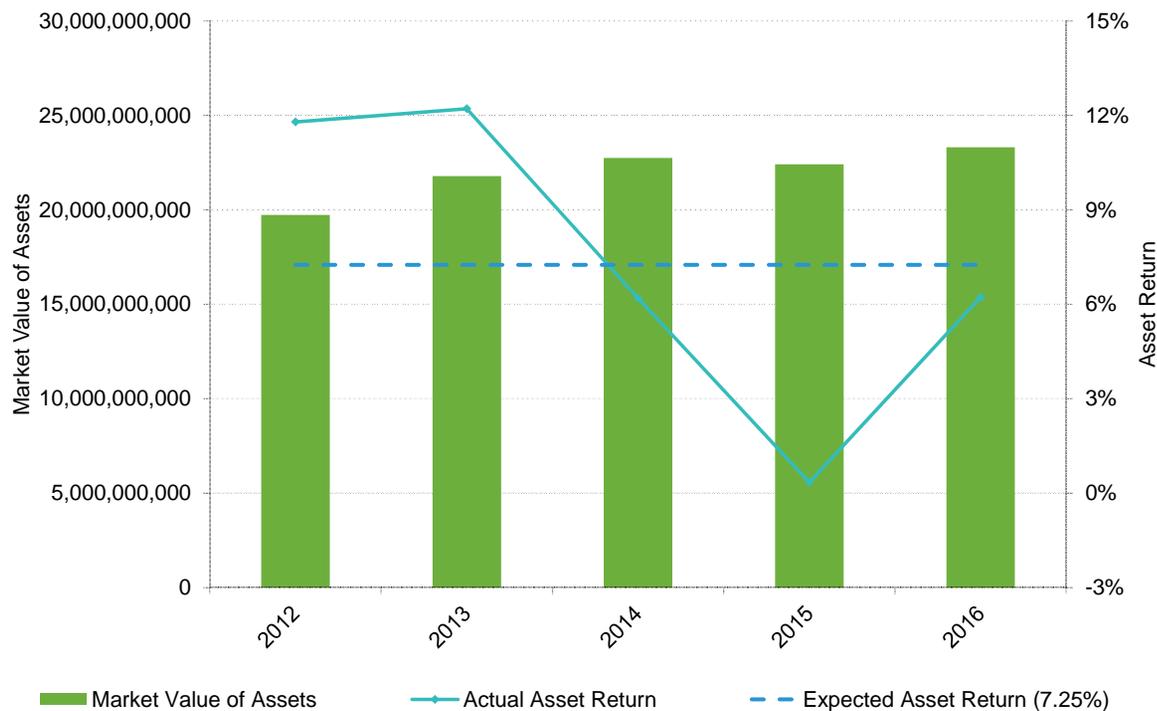
Asset Data as of	12/31/2016	12/31/2015
Beginning of Year Market Value of Assets	\$ 22,403,836,820	\$ 22,744,942,754
Contributions	816,918,631	795,382,032
Benefit Payments	(1,291,506,719)	(1,213,496,597)
Investment Income	<u>1,379,568,835</u>	<u>77,008,631</u>
Net Increase/(Decrease)	904,980,747	(341,105,934)
End of Year Market Value of Assets	\$ 23,308,817,567	\$ 22,403,836,820
Estimated Net Investment Return on Market Value	6.22%	0.34%

The Market Value of Assets is \$23.3 billion as of December 31, 2016 and was \$22.4 billion as of December 31, 2015. The investment return for the market value of assets for calendar year 2016 was 6.22%.

The market value of assets is provided in Section 4 of the actuarial report.

## Valuation Input

# Asset Data: Market Value of Assets and Asset Returns

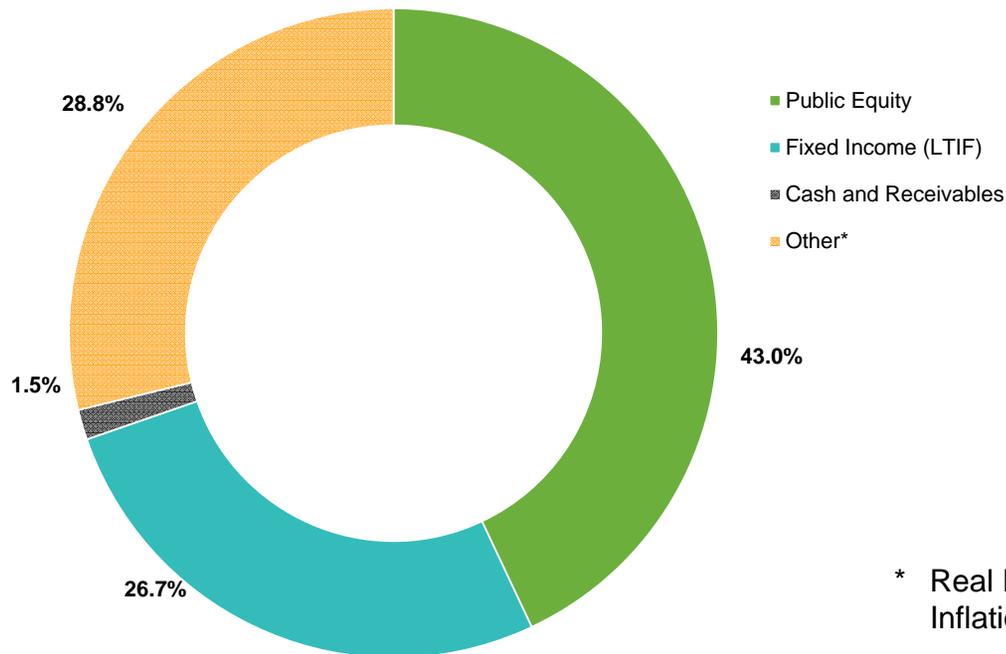


Returns were less than the 7.25% assumed rate of return, resulting in a higher required contribution than anticipated as of the December 31, 2016 baseline projections presented in the December 31, 2015 actuarial report.

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

## Valuation Input

# Asset Data: Allocation of Investments by Category



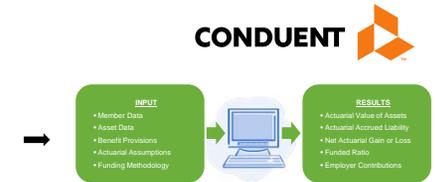
\* Real Estate, Alternatives, Inflation and Credit

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



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 7.20% discount rate used in this valuation is reasonable and appropriate.

# Valuation Input Benefit Provisions



Benefit provisions are described in North Carolina General Statutes.

There were no significant changes in benefit provisions from the prior year's valuation.

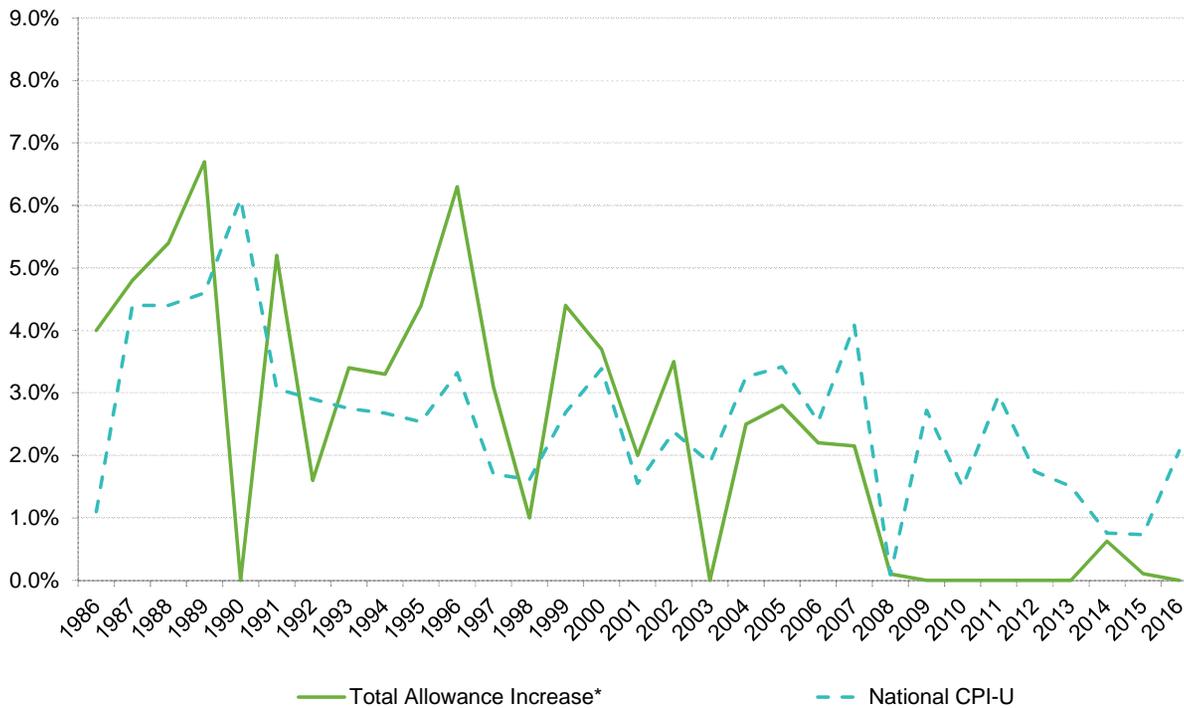
Many Public Sector Retirement Systems in the United States have undergone pension reform where the benefits of members (active or future members) have been reduced.

Because of the well-funded status of LGERS due to the legislature contributing the actuarially determined employer contribution, benefit cuts have not been needed 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, the system should review likely impacts of the shift and consider corresponding changes to actuarial assumptions, funding policy and/or benefit levels.

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

# Valuation Input

## Benefit Provisions: Cost-of-Living Allowance Increase and CPI-U History



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.

\*Allowance increases are effective July 1 of the following year.

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

# Valuation Input Actuarial Assumptions



- Demographic (future events that relate to people)
  - Retirement
  - Termination
  - Disability
  - Death
- Economic (future events that relate to money)
  - Interest rate – 7.20% per year
  - Salary increase (individual, varies by service)
  - Inflation – 3.00%
  - Real wage growth – 0.50%
- The interest rate was updated from 7.25% to 7.20% as adopted by the Board of Trustees on April 20, 2017

The assumptions used for the December 31, 2016 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, and a discount rate of 7.20% as adopted by the Board of Trustees on April 20, 2017.

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

# 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 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

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

## Valuation Input

# Funding Methodology (continued)



- 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.

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. As such it is a best practice in the industry.

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

## Valuation Input

# Funding Methodology (continued)



- For employers who joined the System prior to November 1, 2016, 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.
- Three (3) employers were granted relief at 7/1/2017
- Eight (8) employers are expected to be granted relief at 7/1/2018 based on this valuation

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

# Valuation Results

## Actuarial Value of Assets



Asset Data as of	12/31/2016
Beginning of Year Market Value of Assets	\$ 22,403,836,820
Contributions	816,918,631
Benefit Payments	(1,291,506,719)
Net Cash Flow	(474,588,088)
Expected Investment Return	1,607,074,351
Expected End of Year Market Value of Assets	23,536,323,083
End of Year Market Value of Assets	23,308,817,567
Excess of Market Value over Expected Market Value of Assets	(227,505,516)
80% of 2016 Asset Gain/(Loss)	(182,004,413)
60% of 2015 Asset Gain/(Loss)	(934,105,840)
40% of 2014 Asset Gain/(Loss)	N/A
20% of 2013 Asset Gain/(Loss)	N/A
Total Deferred Asset Gain/(Loss)	(1,116,110,253)
Preliminary End of Year Actuarial Value of Assets	24,424,927,820
Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value)	24,424,927,820
Estimated Net Investment Return on Actuarial Value	5.34%

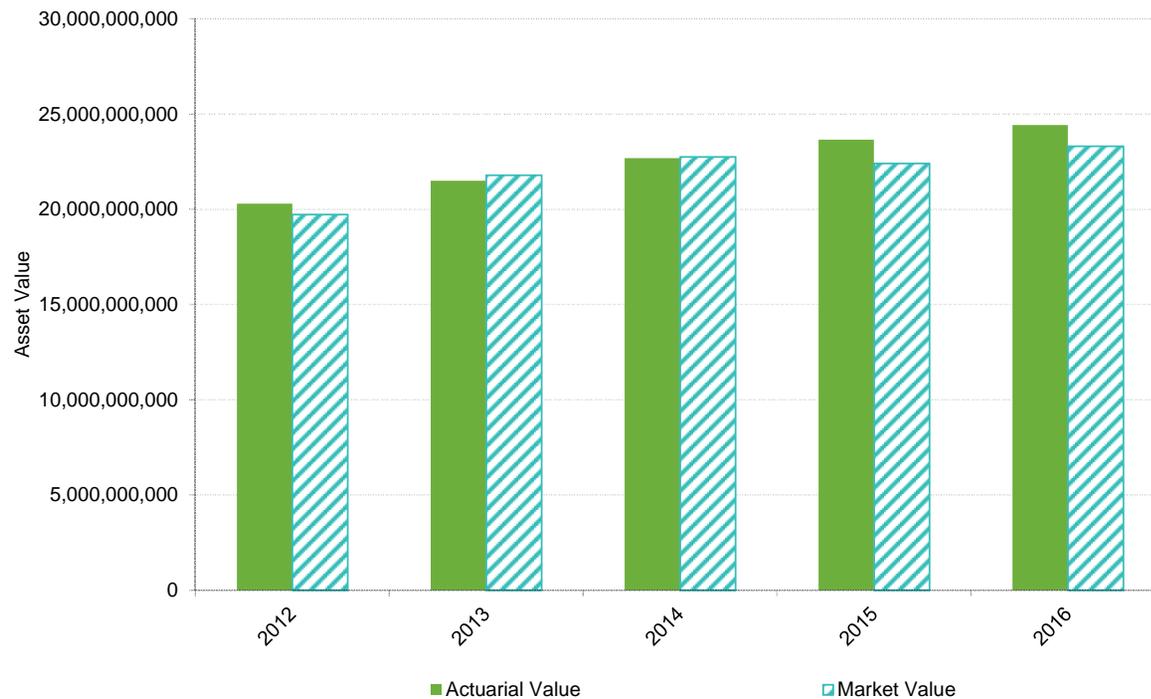
The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution.

Lower than expected returns in 2015 and 2016 resulted in an actuarial value of asset return for calendar year 2016 of 5.34% and a recognized actuarial asset loss of \$447 million during 2016.

The actuarial value of assets is provided in Section 4 of the actuarial report.

## Valuation Results

# Actuarial Value of Assets: Compared to Market Value



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



The market value of assets is lower than the actuarial value of assets, which is used to determine employer contributions. This indicates that there are unrecognized asset losses to be recognized in future valuations.

# Valuation Results

## Historical Asset Returns



Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
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%
Average	6.37%	5.53%
Range	6.22%	34.41%

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 6.37% tracks average market return of 5.53% relatively well. But the range of returns is markedly less – 6.22% versus 34.41%. 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.

The valuation assumes that the funds will earn a 7.20% asset return. This table provides a history of the actuarial value and market value of asset returns.

## Valuation Results

# Asset Returns: Actuarial Value and Market Value



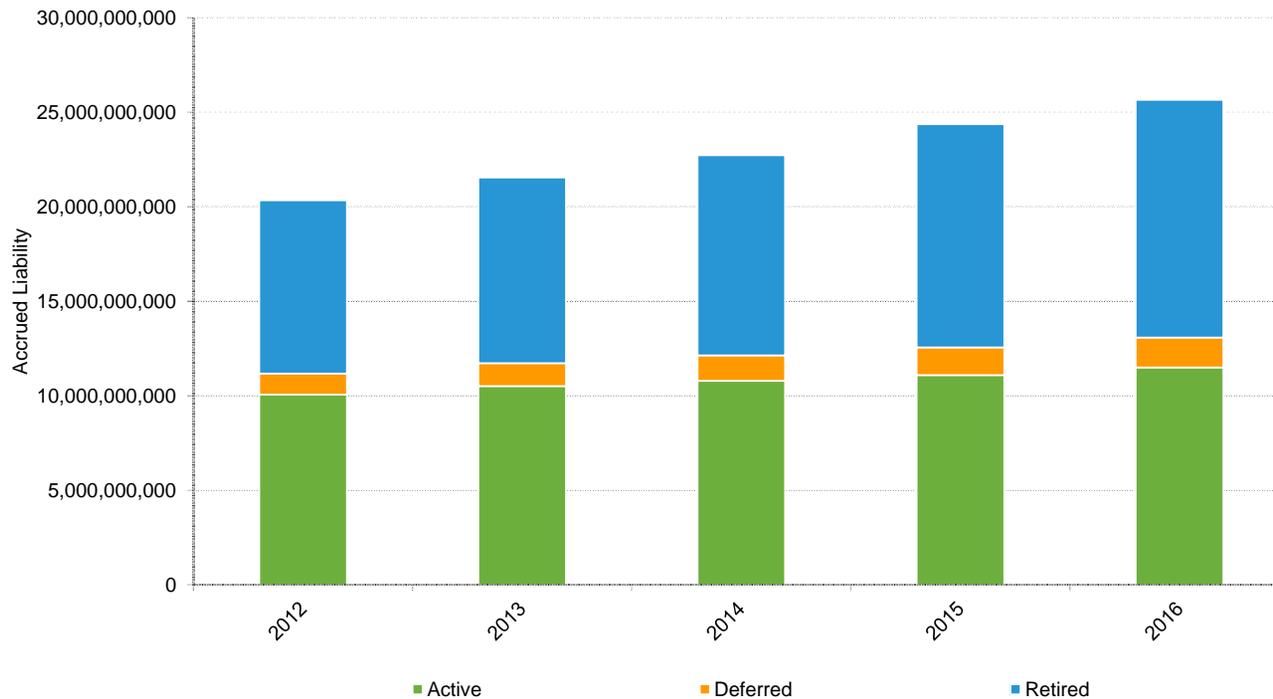
A detailed summary of the actuarial value of assets is provided in Section 4 of the actuarial report.



The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution.

# Valuation Results

## Actuarial Accrued Liability (AAL)



The AAL increased from \$24.4 billion to \$25.7 billion during 2016. 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 next as more benefits accrue and the membership approaches retirement.

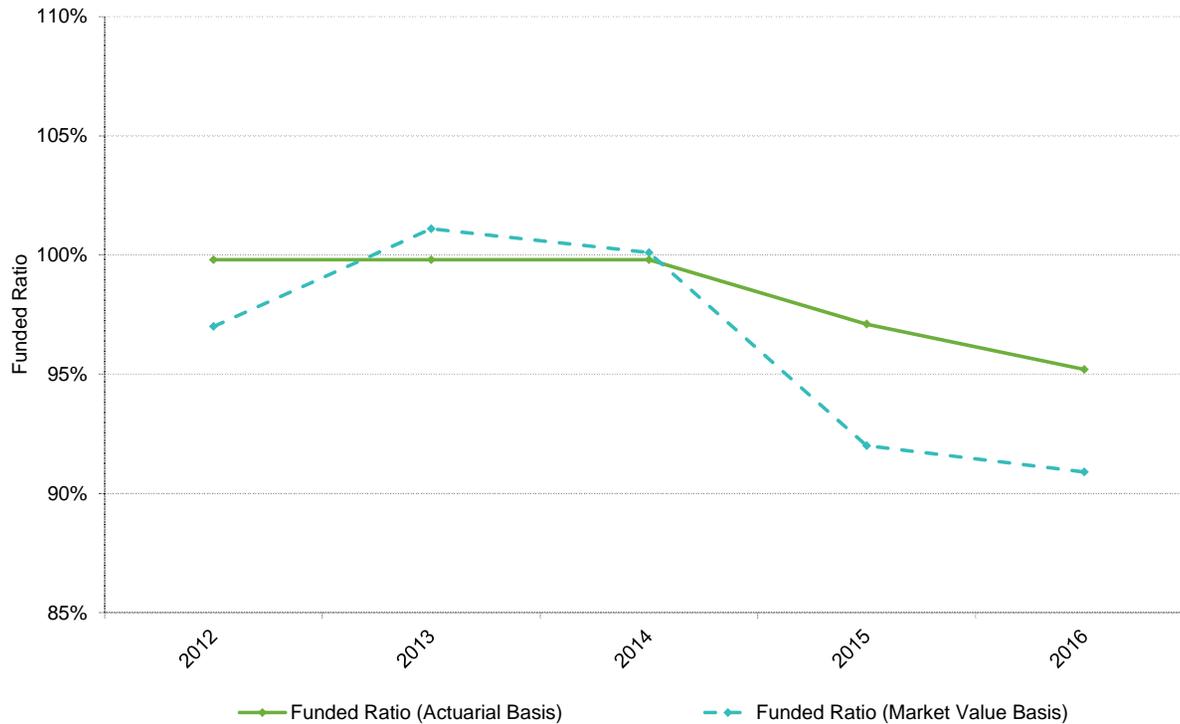
The AAL prior to assumption and legislative changes was \$49 million higher than expected, which resulted in a demographic loss of \$49 million during 2016.

Assumption changes increased the AAL by \$136 million.

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

## Valuation Results

# Funded Ratio: AAL Divided by AVA



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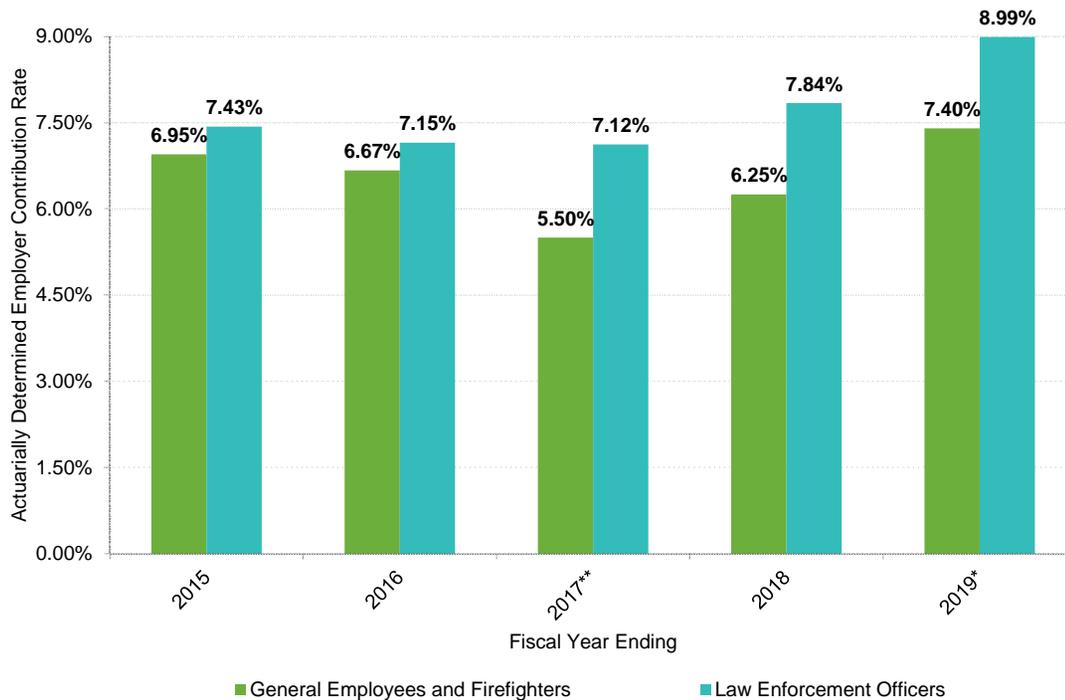
The ratio of assets to liabilities shows the health of the plan on an accrued basis.

The funded ratio on an actuarial basis decreased from 97.1% at December 31, 2015 to 95.2% at December 31, 2016.

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.

# Valuation Results

## Actuarially Determined Employer Contributions



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.

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.

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

\*\* Includes impact of the experience study.

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

## Valuation Results

# Employer Contribution Rate Stabilization Policy (ECRSP)



- The ECRSP was adopted by the Board of Trustees on January 21, 2016.
- The ECRSP sets recommended employer contributions for general employees and firefighters at 7.25% of payroll for fiscal year ending 2017 with 0.25% increases each fiscal 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

## Valuation Results

# Employer Contribution Rate Stabilization Policy (ECRSP)



- Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees.
- The preliminary ADEC for fiscal year ending 2019 is 7.40% for general employees and firefighters and 8.99% for law enforcement officers based on this valuation.
- The ECRSP would result in a recommended contribution rate of 7.75% of payroll for general employees and firefighters and 8.50% of payroll for law enforcement officers for fiscal year ending 2019.

## Valuation Results

# Actuarially Determined Employer Contribution (ADEC) Rates for General Employees and Firefighters



Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2016	7/1/2018	7.40%	N/A	N/A	N/A
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 effective 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.

For general employees and firefighters, the employer contribution rate for fiscal year ending 2018 is 7.50% of payroll. The preliminary ADEC for fiscal year ending 2019 is 7.40% of payroll.

Each 1% COLA is equivalent to 0.31% of payroll and each 0.01% increase in benefit rate is equal to 0.37% of payroll.

The actuarially determined employer contribution rates are provided in Section 6 of the actuarial report.

## Valuation Results

# Actuarially Determined Employer Contribution (ADEC) Rates for Law Enforcement Officers



Valuation Date	Rate Effective	Preliminary ADEC	Change due to Legislation*	Final ADEC	Actual Contribution
12/31/2016	7/1/2018	8.99%	N/A	N/A	N/A
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 effective 7/1/2016 includes a 0.22% 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.

For law enforcement officers, the employer contribution rate for fiscal year ending 2018 is 8.25% of payroll. The preliminary ADEC for fiscal year ending 2019 is 8.99% of payroll.

Each 1% COLA is equivalent to 0.31% of payroll and each 0.01% increase in benefit rate is equal to 0.37% of payroll.

The actuarially determined employer contribution rates are provided in Section 6 of the actuarial report.

## Valuation Results

# Reconciliation of the Change in Actuarially Determined Employer Contribution



	General Employees and Firefighters	Law Enforcement Officers
Fiscal year ending June 30, 2018 Preliminary ADEC (based on December 31, 2015 valuation)	6.25%	7.84%
Impact of Legislative Changes	<u>0.00%</u>	<u>0.00%</u>
Fiscal year ending June 30, 2018 Final ADEC	6.25%	7.84%
Non-Investment (Gain)/Loss	0.15%	0.15%
Change Due to Investment (Gain)/Loss	<u>1.00%</u>	<u>1.00%</u>
Fiscal year ending June 30, 2019 Preliminary ADEC (based on December 31, 2016 valuation)	7.40%	8.99%

Investment loss is a recognition of asset losses from 2015 and 2016.

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

## Valuation Results

# Potential Cost-of-Living Adjustments



- Based on the actuarial investment loss recognized in this December 31, 2016, valuation, no Cost-of-Living Adjustment (COLA) that would take effect on July 1, 2018, may be granted by the Board
- Based on the methods and assumptions used for the projections discussed on Slide 31, we estimate that a potential COLA effective July 1, 2019, may be granted by the Board following the December 31, 2017, valuation in the following circumstances:
  - If calendar year 2017 market value returns exceed 16.7% (or about \$3.8B for LGERS), the plan is estimated to have an actuarial investment gain (rather than a loss) for 2017 and a COLA that would take effect on July 1, 2019, could be considered.
  - If calendar year 2017 market value returns exceed 19.9% (or about \$4.6B for LGERS), the plan is estimated to have an actuarial investment gain (rather than a loss) for 2017 and such gain may be enough to provide a 1% COLA that would take effect on July 1, 2019.
    - Estimated actuarial investment gain of \$146.4M
    - Estimated cost of 1% COLA payable to retirees effective July 1, 2019 of \$146.4M

*Note: Conduent 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.*

# Valuation Results

## Additional Disclosures



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 3.06% at December 31, 2016.

Discount Rate	3.06%	5.13%	7.20%	9.27%	11.34%
Market Value of Assets	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567
Actuarial Accrued Liability	\$ 43,009,246,781	\$ 32,675,462,355	\$ 25,653,605,988	\$ 21,023,521,669	\$ 17,627,948,029
Unfunded Accrued Liability (UAL)	\$ 19,700,429,214	\$ 9,366,644,788	\$ 2,344,788,421	\$ (2,285,295,898)	\$ (5,680,869,538)
Funded Ratio	54.2%	71.3%	90.9%	110.9%	132.2%
20-Year Amortization of UAL (as % of general local revenue)	\$ 1,372,277,766 8.3%	\$ 798,890,806 4.8%	\$ 240,965,984 1.5%	N/A N/A	N/A N/A

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

The difference between the UAL measured at 7.20% and 3.06% is \$17.4 billion at December 31, 2016.

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

# Valuation Results

## Additional Disclosures



The table below provides an estimate of future market value of asset returns based on the current portfolio structure and summarized in our “TSERS Asset-Liability and Investment Strategy Project” report dated April 19th, 2016. The table show the statistical likelihood of minimum future asset returns as of 12/31/2015 (i.e., the probability that annualized rates of return over each time horizon will be greater than or equal to the rates shown in the table).

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%

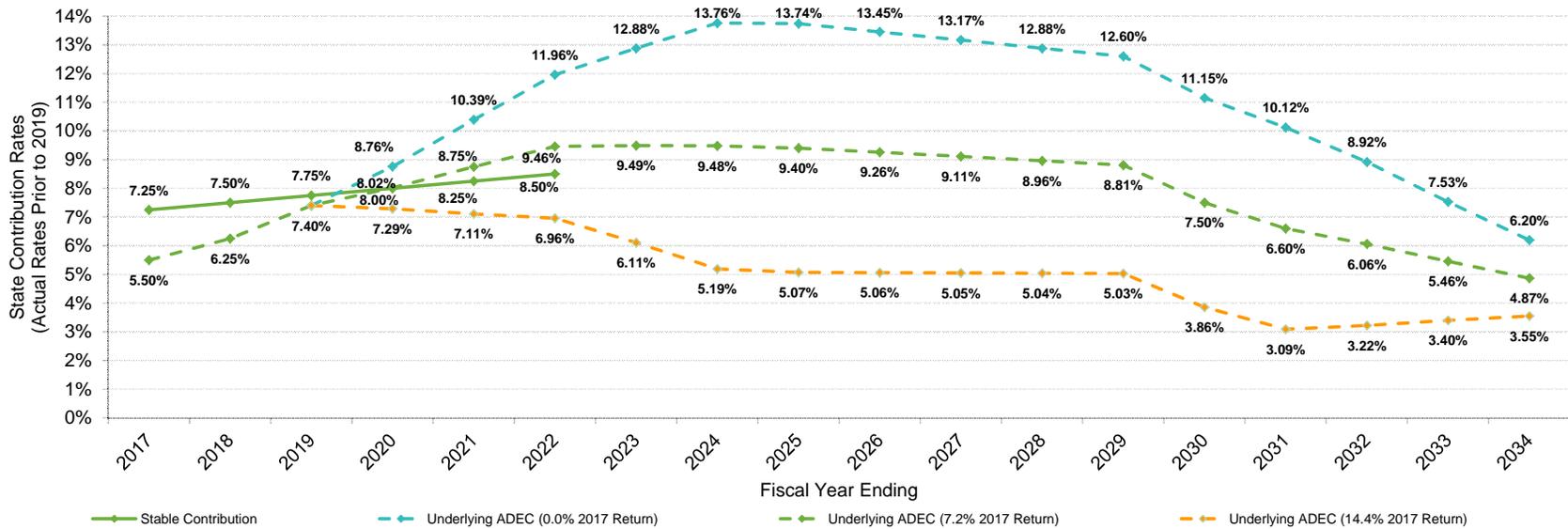
The lower bound of 3.06% falls slightly below the 5th percentile of estimated future 30-year returns. In other words, there is less than a 5% chance of seeing a 30-year return of 3.06% or lower based on the current portfolio structure.

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

# Projections: Actuarially Determined Employer Contribution Rate and Funded Status

- 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, 2016 valuation results
  - December 31, 2016 valuation assumptions and methods to project future valuation results, including:
    - Valuation interest rate of 7.20% for all years
    - Investment return of 7.20% on market value of assets
  - The contribution rate under the Employer Contribution Rate Stabilization Policy is contributed until fiscal year ending 2022.
  - The ADEC is contributed for fiscal years ending 2023 and beyond.
  - 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 0.0% asset return for calendar year 2017.
  - Second alternate deterministic projection assumes a 14.4% asset return for calendar year 2017.

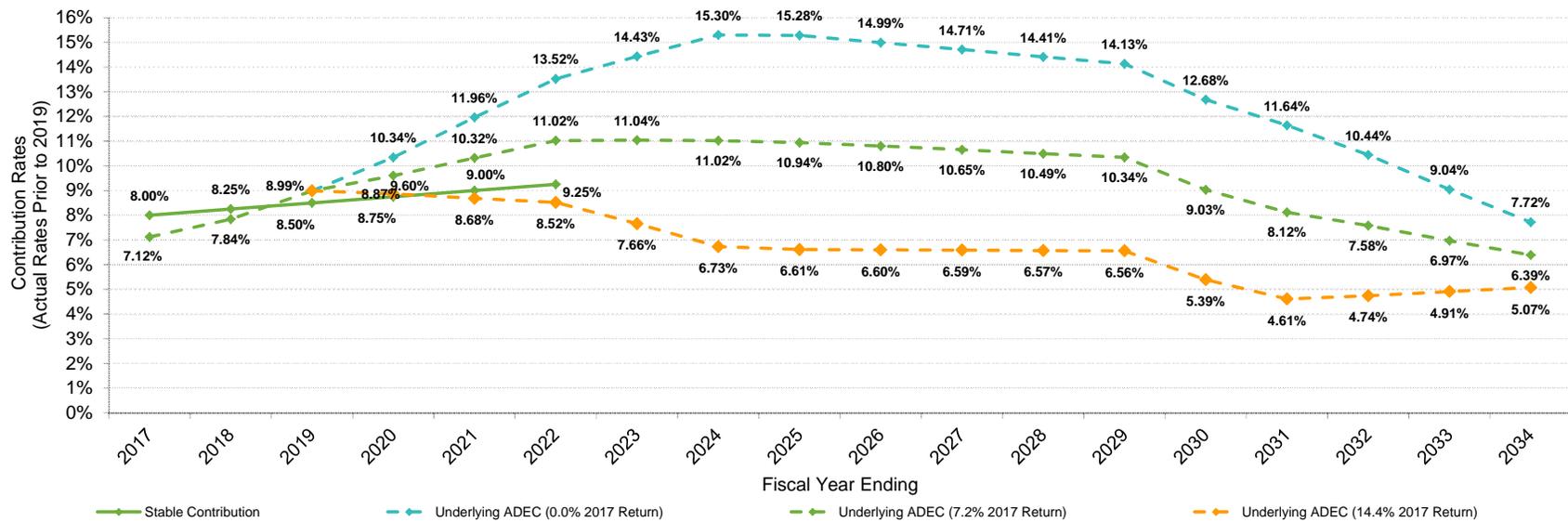
# Projections: Projected Actuarially Determined Contribution Rates for General Employees and Firefighters



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.

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

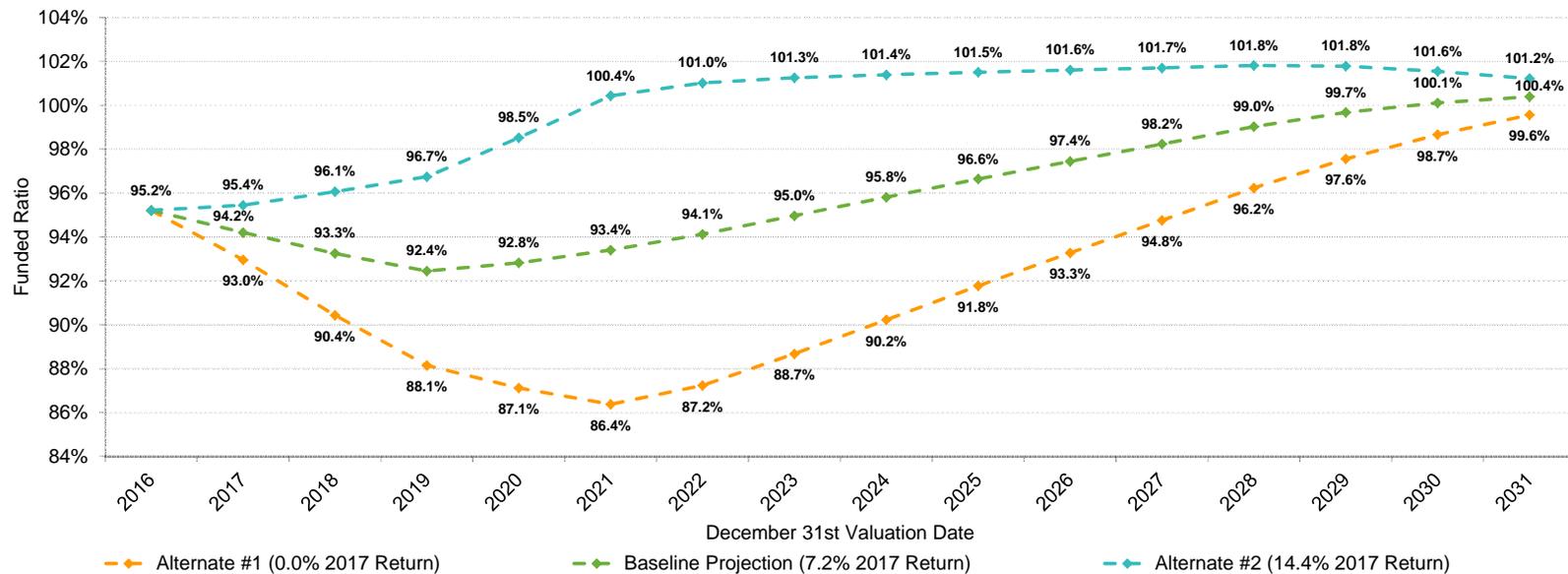
# Projections: Projected Actuarially Determined Contribution Rates for Law Enforcement Officers



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.

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

# Projections: Projected Funded Ratio



Note that if the 7.20% 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 the actuarial report.

# Key Takeaways

Key results of the December 31, 2016 valuation were:

- Market value returns of 6.22% compared to 7.25% assumed
- Increase in covered payroll of 3.2% compared to approximately 3% expected
- Change in discount rate from 7.25% to 7.20% as of December 31, 2016

When compared to the December 31, 2015 baseline projections, the above resulted in:

- Higher actuarially determined employer contribution rates for fiscal year ending June 30, 2019
  - 7.40% in the valuation compared to 6.79% in the baseline projection for general employees and firefighters
  - 8.99% in the valuation compared to 8.37% in the baseline projection for law enforcement officers
- 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 appropriating and 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

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

# Certification



The assumptions, methods, and plan provisions used in the results presented in this presentation were provided in October 2017 in the “Report on the Actuarial Valuation of the North Carolina Local Governmental Employees’ Retirement System prepared as of December 31, 2016.”

The results were prepared under the direction of Michael Ribble and David Driscoll who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about them.

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.

Michael A. Ribble, FSA, EA, MAAA  
Principal, Consulting Actuary

David Driscoll, FSA, EA, MAAA, FCA  
Principal, Consulting Actuary

# North Carolina Local Governmental Employees' Retirement System

Report on the Actuarial Valuation  
Prepared as of December 31, 2016

October 2017

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October 13, 2017

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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, 2016. The report has been prepared in accordance with North Carolina General Statute 128-28(p).

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 Conduent HR Services to review any statement you wish to make on the results contained in this report. Conduent HR Services 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 Conduent HR Services and we cannot certify as to the accuracy and completeness of the data supplied. The valuation is also based on benefit and contribution provisions as presented in this report. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial report prior to relying on this information.

The valuation is further based on the actuarial valuation assumptions, approved by the Board of Trustees, as presented in this report. We believe that these assumptions are appropriate and reasonable 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, 2016 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, and a discount rate of 7.20% as adopted by the Board of Trustees on April 20, 2017. The economic assumptions with respect to investment yield, salary increase and inflation have been based upon a review of the existing portfolio structure as well as recent and anticipated experience.

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 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, Conduent HR Services performed no analysis of the potential range of such future differences, except for some limited analysis in financial projections or required disclosure information.

I 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 I am available to answer questions about it.

Respectfully submitted,



Michael A. Ribble, FSA, EA, MAAA  
Principal, 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, 2016, the RSD defined benefit plans cover over one million current and prior public servants in the state of North Carolina. During the fiscal year ending June 30, 2017, RSD paid nearly \$6.0 billion in pensions to more than 290,000 retirees. And as of June 30, 2017, RSD's assets were valued at almost \$94 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 \$23 billion in assets and more than 256,000 members. This actuarial valuation report is our annual analysis of the financial health of LGERS. This report, prepared as of December 31, 2016, 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, 2016 valuation as compared to the December 31, 2015 valuation were:

- Market value returns of 6.22% compared to 7.25% assumed
- Increase in covered payroll of 3.2% compared to approximately 3% expected
- Change in discount rate from 7.25% to 7.20% as of December 31, 2016
- 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 2019
  - 7.75% of payroll for general employees
  - 8.50% of payroll for law enforcement officers

When compared to the December 31, 2015 projections, the above resulted in:

- Higher actuarially determined employer contribution rates for fiscal year ending June 30, 2019
  - 7.75% in the valuation compared to 6.79% in the baseline projection for general employees and firefighters
  - 8.99% in the valuation compared to 8.37% in the baseline projection for law enforcement officers
- Higher projected benefit amounts being accrued by active members

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, 2016, 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	12/31/2016	12/31/2015
Active Members		
Number	126,647	124,974
Reported Compensation	\$ 5,716,583,136	\$ 5,541,839,498
Valuation Compensation*	\$ 6,048,808,955	\$ 5,869,461,590
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	65,930	63,110
Annual Allowances	\$ 1,251,874,605	\$ 1,181,580,927
Number of Participating Employers	888	886
Assets		
Actuarial Value (AVA)	\$ 24,424,927,820	\$ 23,649,311,273
Market Value	\$ 23,308,817,567	\$ 22,403,836,820
Actuarial Accrued Liability (AAL)	\$ 25,653,605,988	\$ 24,360,119,869
Unfunded Accrued Liability (AAL-AVA)	\$ 1,228,678,168	\$ 710,808,596
Funded Ratio (AVA/AAL)**	95.2%	97.1%
Unfunded Initial Prior Service Liability	\$ 29,688,150	\$ 33,440,798

\* Reported compensation adjusted to reflect the assume rate of pay increase prior to the valuation date.

\*\* The Funded Ratio on a Market Value of Assets basis is 90.9% at December 31, 2016.

## Section 1: Principal Results

This report, prepared as of December 31, 2016, 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	12/31/2016	12/31/2015
Results for Fiscal Year Ending	6/30/2019	6/30/2018
Actuarially Determined Employer Contribution (ADEC), as a percentage of payroll		
General Employees and Firefighters		
Normal Cost	4.81%	4.67%
Accrued Liability	<u>2.59%</u>	<u>1.58%</u>
Total	7.40%	6.25%
Impact of Legislative Changes	<u>N/A</u>	<u>0.00%</u>
Final ADEC	N/A	6.25%
Law Enforcement Officers		
Normal Cost	6.40%	6.26%
Accrued Liability	<u>2.59%</u>	<u>1.58%</u>
Total	8.99%	7.84%
Impact of Legislative Changes	<u>N/A</u>	<u>0.00%</u>
Final ADEC	N/A	7.84%
Board Approved Contribution under the Employer Contribution Rate Stabilization Policy (ECRSP)		
General Employees and Firefighters	7.75%	7.50%
Law Enforcement Officers	8.50%	8.25%
<b>Current Funding in Effect at</b>	<b>7/1/2017</b>	<b>7/1/2016</b>
Employer Contribution Rate as a percentage of payroll		
General Employees and Firefighters	7.50%	7.25%
Law Enforcement Officers	8.25%	8.00%
Preliminary Reserve for Undistributed Gains/(Losses)		
General Employees and Firefighters	0.10%	1.00%
Law Enforcement Officers	(0.74)%	0.16%

## 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)

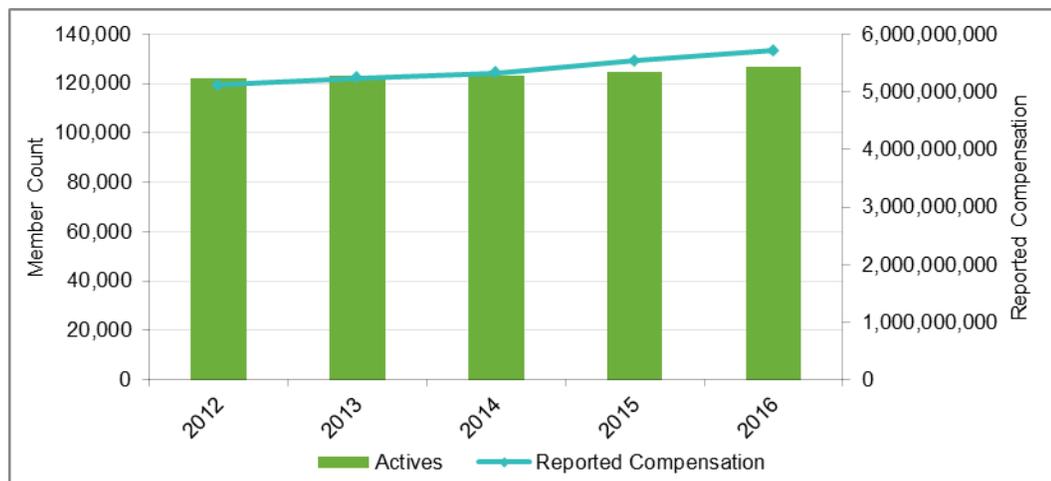
The table below provides a summary of the membership data used in this valuation compared to the prior valuation.

Number as of	12/31/2016	12/31/2015
Active members	126,647	124,974
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	63,682	59,289
Retired members and survivors of deceased members currently receiving benefits	<u>65,930</u>	<u>63,110</u>
Total	256,259	247,373

**Commentary:** The number of active members increased by 1.3% 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 4.5% 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 3.2%. Covered payroll is expected to increase by approximately 3% 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.

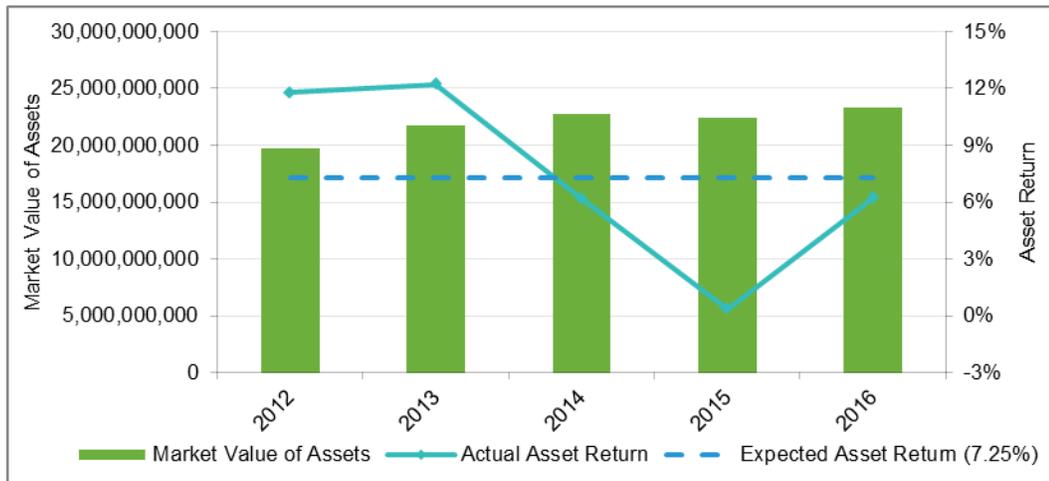
## Section 2: The Valuation Process

### 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 \$23.3 billion as of December 31, 2016 and \$22.4 billion as of December 31, 2015. The investment return for the market value of assets for calendar year 2016 was 6.22%.

#### 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.

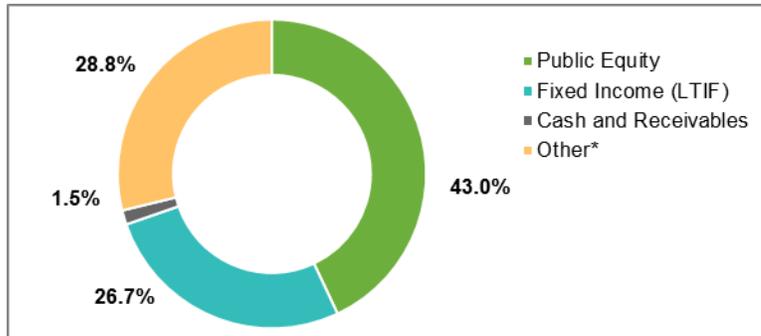


**Commentary:** Returns were less than the 7.25% assumed rate of return, resulting in higher required contributions than anticipated as of the December 31, 2015 baseline projections presented in the December 31, 2015 actuarial report.

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, 2016 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 7.20% 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.

There were no significant changes in benefit provisions from the prior year's valuation.

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.
- 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 needed 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, the system should review likely impacts of the shift and consider corresponding changes to actuarial assumptions, funding policy and/or benefit levels.

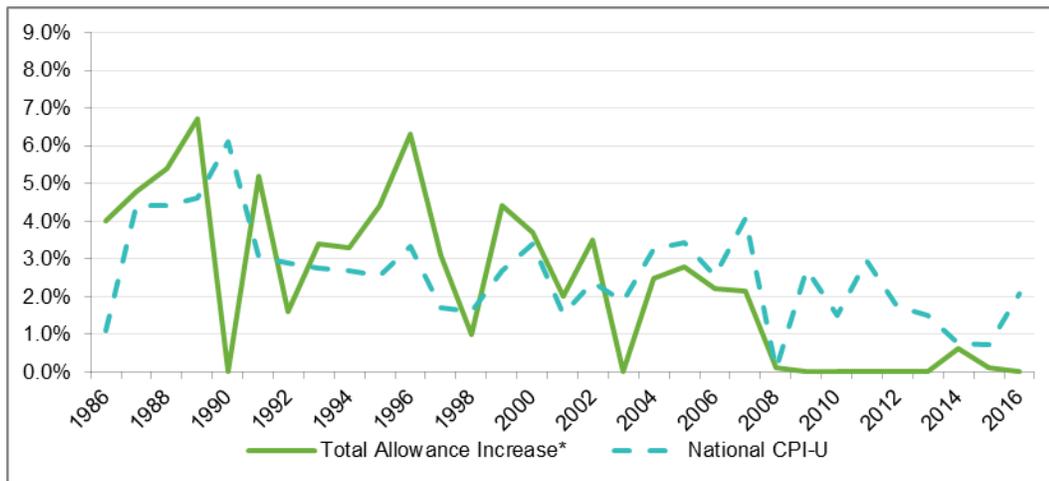
## Section 2: The Valuation Process

### 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, 2016 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 be 7.20%, as adopted by the Board of Trustees on April 20, 2017.

### 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.

- Three (3) employers were granted relief at 7/1/2017
- Eight (8) employers are expected to be granted relief at 7/1/2018 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 \$24.4 billion as of December 31, 2016 and \$23.6 billion as of December 31, 2015.

#### 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.



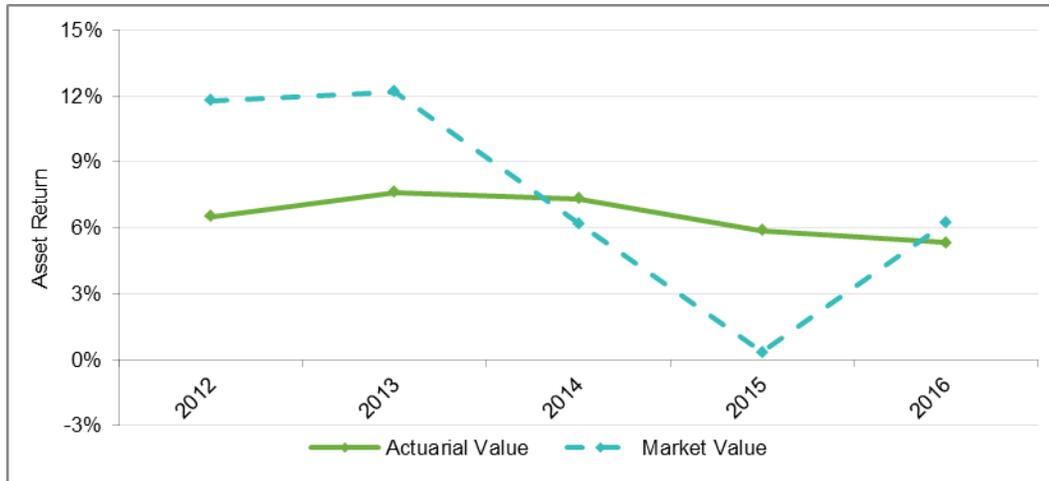
**Commentary:** The market value of assets is lower than the actuarial value of assets, which is used to determine employer contributions. This indicates that there are unrecognized asset losses to be recognized in future valuations.

## 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 2016 was 6.22%. The actuarial value of assets smoothes investment gains and losses. Lower than expected market returns in 2015 and 2016 resulted in an actuarial value of asset return for calendar year 2016 of 5.34% and a recognized actuarial asset loss of \$447 million during 2016.

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

## Section 2: The Valuation Process

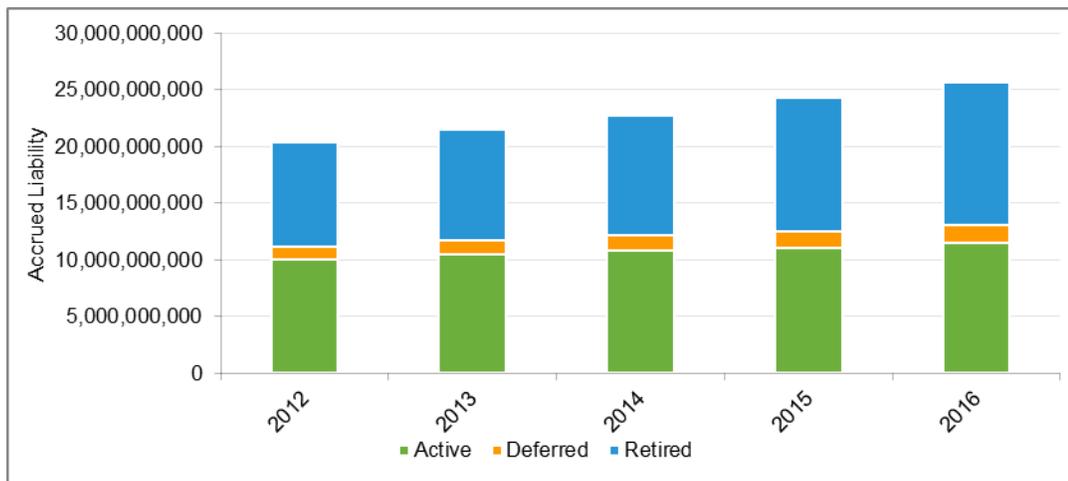
### Valuation Results: Actuarial Accrued Liability

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 \$24.4 billion to \$25.7 billion during 2016. 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 \$1.11 billion due to benefit accruals and interest. Additionally, demographic changes increased the AAL by \$49 million and assumption changes increased the AAL by \$136 million.

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

## Section 2: The Valuation Process

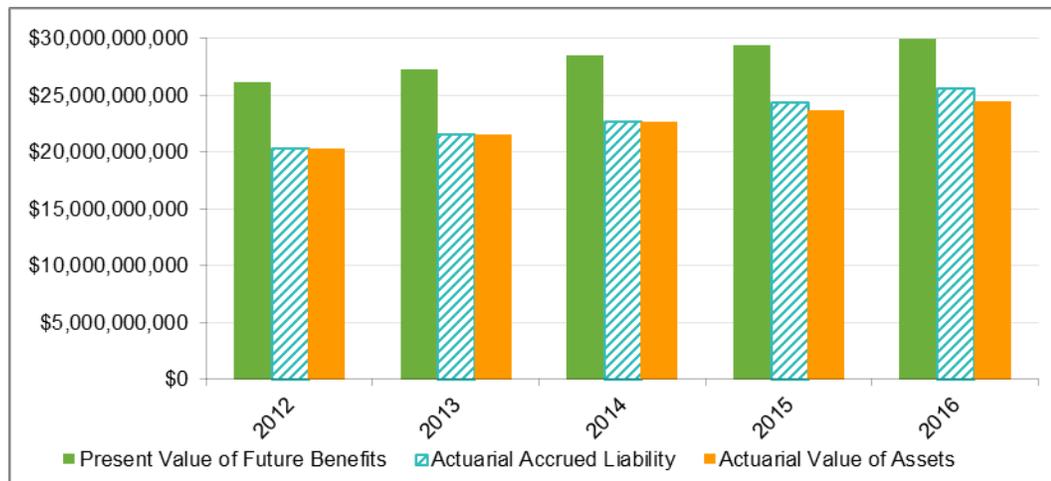
### Valuation Results: Funded Ratio

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 join 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.



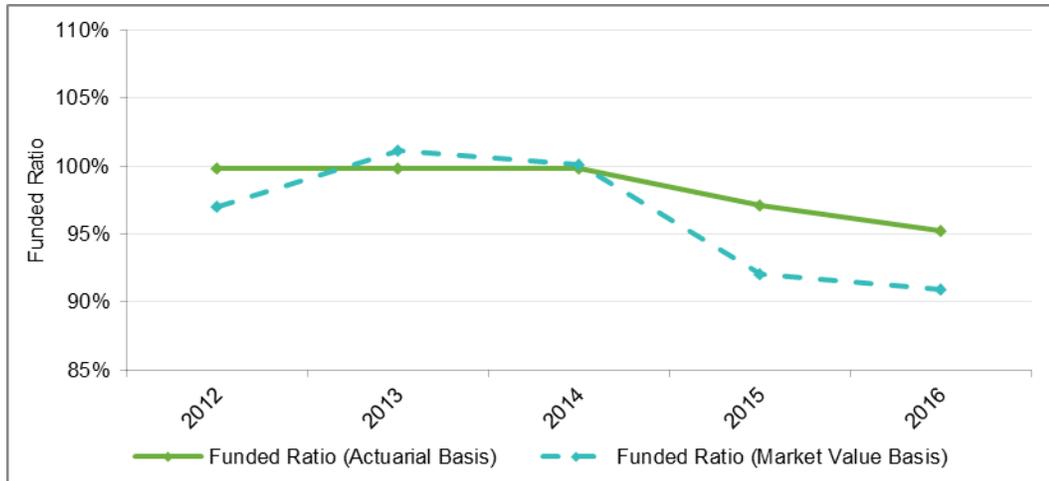
**Commentary:** The present value of future benefits has increased over the past five years. The present value of future benefits increased from \$29.4 billion at December 31, 2015 to \$30.9 billion at December 31, 2016.

## 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 97.1% at December 31, 2015 to 95.2% at December 31, 2016. 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.

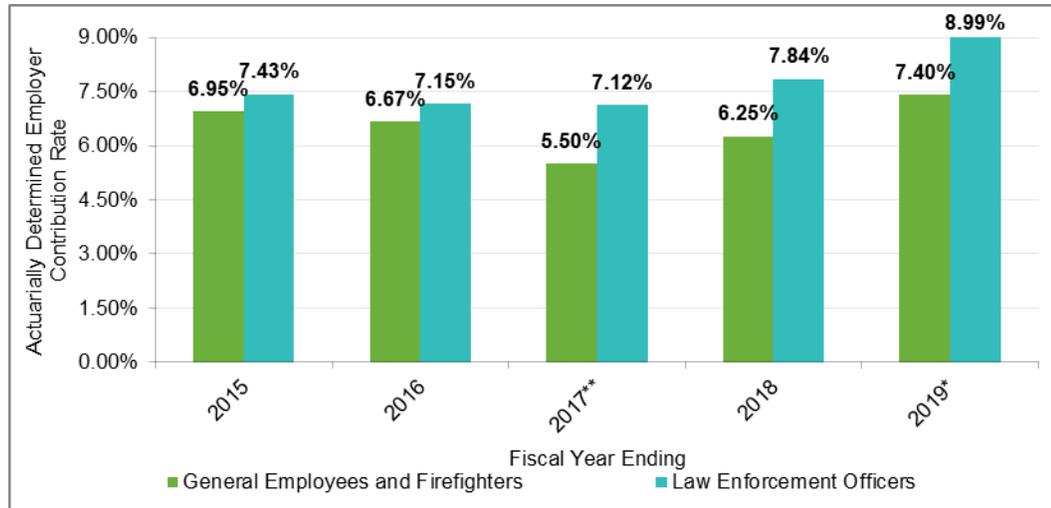
The December 31, 2015 valuation resulted in a preliminary actuarially determined employer contribution rate of 6.25% of payroll for general employees and firefighters and 7.84% of payroll for law enforcement officers at July 1, 2017. Subsequently, the Board of Trustees set contributions at 7.50% of payroll for general employees and firefighters and 8.25% of payroll for law enforcement officers at July 1, 2017 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, 2016 valuation, the preliminary actuarial determined employer contribution rate is 7.40% of payroll for general employees and firefighters and 8.99% of payroll for law enforcement officers. Based on the ECRSP, the preliminary ECRSP contribution rate should be set at 7.75% of payroll for general employees and firefighters and 8.50% of payroll for law enforcement officers at July 1, 2018.

## 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 member contribution, offset 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 period of 30 years or more 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, 2016 valuation results as assumptions.

#### **Key Projection Assumptions:**

- Valuation interest rate of 7.20% for all years
- 7.20% 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.

## Section 2: The Valuation Process

### Valuation Results: Projections (continued)

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 2017. The second alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 14.4% asset return for calendar year 2017.

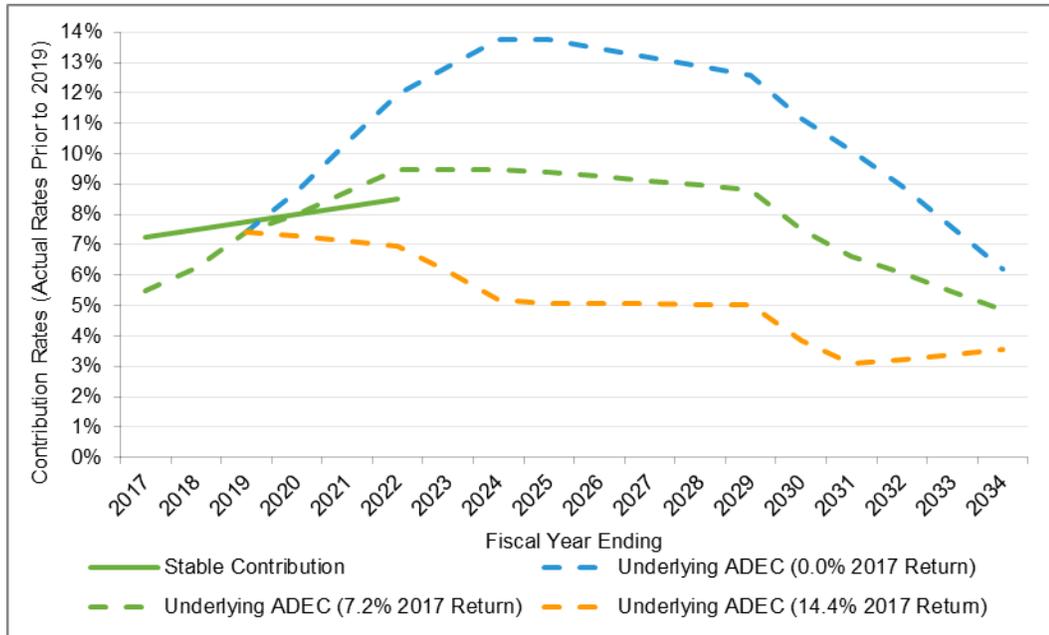
Finally, stochastic projections, where hundreds of projections based on varying rates of return are performed and results are ordered, are periodically performed by the investment management division and shared with the Retirement Board and RSD staff.

## Section 2: The Valuation Process

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.



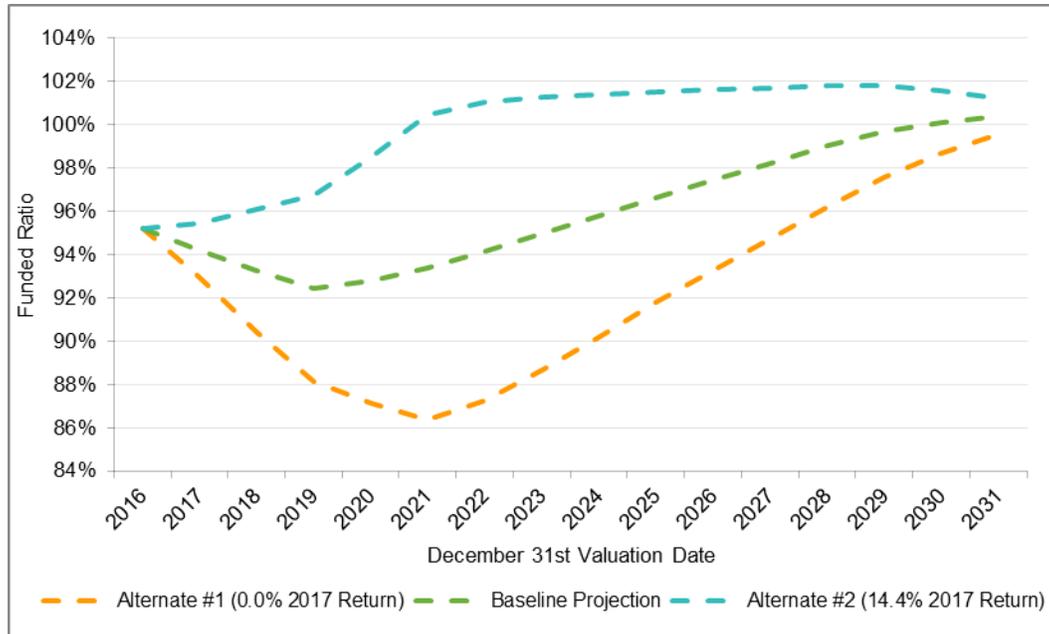
**Commentary:** The actuarially determined employer contribution rate trends to around 5%, which is the level of the cost of benefits accrued, or the long term employer cost of LGERS when there is no pension debt. The contribution rates shown in the graph above do not include an employer's additional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

## 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 7.20% 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, 2017, is \$1,527,723,000 (compared to \$2,122,335,000 for fiscal year ending June 30, 2016). 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	93,870	45.80	9.88	\$ 4,100,120,696
Firefighters	11,891	38.23	10.25	565,265,240
Law Enforcement Officers	<u>20,886</u>	<u>39.26</u>	<u>11.29</u>	<u>1,051,197,200</u>
Total	126,647	44.01	10.15	\$ 5,716,583,136

The table above includes members not in receipt of benefits who had reported compensation in 2016.

**Table 3: Terminated Vested Member Data**

	Member Count	Average Age	Average Service	Accumulated Contributions
General Employees	53,800	45.31	3.85	\$ 637,537,417
Firefighters	2,990	37.31	4.21	37,515,925
Law Enforcement Officers	<u>6,892</u>	<u>40.37</u>	<u>5.33</u>	<u>115,063,893</u>
Total	63,682	44.40	4.03	\$ 790,117,235

The table above includes members not in receipt of benefits who did not have reported compensation in 2016.

## Section 3: Membership Data

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

	Member Count	Average Age	Annual Retirement Allowances
<u>Retired Members (Healthy at Retirement)</u>			
General Employees	40,758	70.12	\$ 738,195,823
Firefighters	2,261	65.51	69,865,929
Law Enforcement Officers	7,520	65.06	202,306,262
Total	50,539	69.16	\$ 1,010,368,014
<u>Retired Members (Disabled at Retirement)*</u>			
General Employees	6,400	62.75	\$ 104,080,313
Firefighters	1,133	61.45	31,006,029
Law Enforcement Officers	1,454	56.58	30,083,293
Total	8,987	61.59	\$ 165,169,635
<u>Survivors of Deceased Members</u>			
General Employees	4,862	71.78	\$ 53,589,680
Firefighters	344	75.55	5,188,627
Law Enforcement Officers	1,198	70.44	17,558,649
Total	6,404	71.73	\$ 76,336,956
Grand Total	65,930	68.38	\$ 1,251,874,605

\* 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	12/31/2016	12/31/2015
Beginning of Year Market Value of Assets	\$ 22,403,836,820	\$ 22,744,942,754
Contributions	816,918,631	795,382,032
Benefit Payments	(1,291,506,719)	(1,213,496,597)
Investment Income	<u>1,379,568,835</u>	<u>77,008,631</u>
Net Increase/(Decrease)	904,980,747	(341,105,934)
End of Year Market Value of Assets	\$ 23,308,817,567	\$ 22,403,836,820
Estimated Net Investment Return on Market Value	6.22%	0.34%

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

Asset Data as of	12/31/2016	12/31/2015
Allocation by Dollar Amount		
Public Equity	\$ 10,024,500,370	\$ 9,520,339,674
Fixed Income (LTIF)	6,234,361,635	6,307,373,789
Cash and Receivables	339,568,026	440,275,643
Other*	<u>6,710,387,536</u>	<u>6,135,847,714</u>
Total Market Value of Assets	\$ 23,308,817,567	\$ 22,403,836,820
Allocation by Percentage of Asset Value		
Public Equity	43.0%	42.5%
Fixed Income (LTIF)	26.7%	28.2%
Cash and Receivables	1.5%	2.0%
Other*	<u>28.8%</u>	<u>27.3%</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	12/31/2016
Beginning of Year Market Value of Assets	\$ 22,403,836,820
Contributions	816,918,631
Benefit Payments	<u>(1,291,506,719)</u>
Net Cash Flow	(474,588,088)
Expected Investment Return	1,607,074,351
Expected End of Year Market Value of Assets	23,536,323,083
End of Year Market Value of Assets	23,308,817,567
Excess of Market Value over Expected Market Value of Assets	(227,505,516)
80% of 2016 Asset Gain/(Loss)	(182,004,413)
60% of 2015 Asset Gain/(Loss)	(934,105,840)
40% of 2014 Asset Gain/(Loss)	N/A
20% of 2013 Asset Gain/(Loss)	<u>N/A</u>
Total Deferred Asset Gain/(Loss)	(1,116,110,253)
Preliminary End of Year Actuarial Value of Assets	24,424,927,820
Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value)	24,424,927,820
Estimated Net Investment Return on Actuarial Value	5.34%

**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 resulted in an actuarial value of asset return for calendar year 2016 of 5.34% and a recognized actuarial asset loss of \$447 million during 2016.

## Section 4: Asset Data

The valuation assumes that the funds will earn a 7.20% 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
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%
Average	6.37%	5.53%
Range	6.22%	34.41%

**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 6.37% tracks average market return of 5.53% rather well. But the range of returns is markedly less – 6.22% versus 34.41%. 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	12/31/2016	12/31/2015
(a) Present Value of Future Benefits		
(1) Active Members	\$ 16,750,605,398	\$ 16,119,533,334
(2) Terminated Members	1,580,234,469	1,459,269,218
(3) Members Currently Receiving Benefits	<u>12,575,121,366</u>	<u>11,802,159,195</u>
(4) Total	\$ 30,905,961,233	\$ 29,380,961,747
(b) Present Value of Future Normal Costs		
(1) Employee Future Normal Costs	\$ 2,875,855,000	\$ 2,783,789,343
(2) Employer Future Normal Costs	<u>2,376,500,245</u>	<u>2,237,052,535</u>
(3) Total	\$ 5,252,355,245	\$ 5,020,841,878
(c) Actuarial Accrued Liability: (a4) - (b3)	\$ 25,653,605,988	\$ 24,360,119,869
(d) Actuarial Value of Assets	\$ 24,424,927,820	\$ 23,649,311,273
(e) Unfunded Accrued Liability: (c) - (d)	\$ 1,228,678,168	\$ 710,808,596
(f) Unfunded Initial Prior Service Liability*	\$ 29,688,150	\$ 33,440,798
(g) Unfunded Accrued Liability to be Amortized over 12 Years (e) - (f)	\$ 1,198,990,018	\$ 677,367,798

\*The unfunded initial prior service liability balance as of December 31, 2016 and the applicable employer contribution rate as of July 1, 2018 is provided in Appendix I, for participating employers with remaining initial prior service liability as of December 31, 2016. 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 join 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. For the December 31, 2015 valuation and later, the funding target is the actuarial accrued liability calculated under the entry age normal cost method, which includes the cost of service for only past service.

## 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	12/31/2016	12/31/2015
Total Participating Employers	888	886
Total Participating Employers with an Unfunded Accrued Liability Balance at Valuation Date	86	96
Employers Granted Relief at 7/1/2017 based on Prior Valuation (7/1/2016 at 12/31/2015)	3	7
Employers with Expected Relief at 7/1/2018 based on Current Valuation (7/1/2017 at 12/31/2015)	8	4

## 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.

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 7.75% of payroll for general employees and firefighters and 8.50% of payroll for law enforcement officers for fiscal year ending 2019.

## 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	12/31/2016
ADEC for Fiscal Year Ending	6/30/2019
<b>Normal Cost Rate Calculation</b>	
(a) Employer Future Normal Cost	
General Employees and Firefighters	\$ 1,779,816,499
Law Enforcement Officers	596,683,746
(b) Present Value of Future Salary	
General Employees and Firefighters	\$ 38,607,733,158
Law Enforcement Officers	9,323,183,524
(c) Normal Cost Rate: (a) / (b)	
General Employees and Firefighters	4.61%
Law Enforcement Officers	6.40%
(d) Expenses	
General Employees and Firefighters	0.20%
Law Enforcement Officers	0.00%
(e) Total Normal Cost Rate: (c) + (d)	
General Employees and Firefighters	4.81%
Law Enforcement Officers	6.40%
<b>Accrued Liability Rate Calculation</b>	
(f) Total Annual Amortization Payments*	\$ 156,895,257
(g) Valuation Compensation	6,048,808,955
(h) Accrued Liability Rate: (f) / (g)	2.59%
Total ADEC (e) + (h)	
General Employees and Firefighters	7.40%
Law Enforcement Officers	8.99%

\*See Table 14 for more detail

## 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, 2016 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, 2018 (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, 2018 Preliminary ADEC (based on December 31, 2015 valuation)	6.25%	7.84%
Impact of Legislative Changes	<u>0.00%</u>	<u>0.00%</u>
Fiscal year ending June 30, 2018 Final ADEC	6.25%	7.84%
Non-Investment (Gain)/Loss	0.15%	0.15%
Change Due to Investment (Gain)/Loss	<u>1.00%</u>	<u>1.00%</u>
Fiscal year ending June 30, 2019 Preliminary ADEC (based on December 31, 2016 valuation)	7.40%	8.99%

## 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 2018. 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	12/31/2016
(a) Unfunded Actuarial Accrued Liability*	\$ 1,198,990,018
(b) Prior Years' Outstanding Balances	\$ 726,476,963
(c) New Amortization Base: (a) - (b)	\$ 472,513,055
(d) New Amortization Payment	\$ 64,454,238

\* Does not include the unfunded initial prior service liability

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

Date Established	Original Balance	12/31/2016 Outstanding Balance	Annual Payment
December 31, 2015	\$ 677,367,798	\$ 726,476,963	\$ 92,441,019
December 31, 2016	472,513,055	<u>472,513,055</u>	<u>64,454,238</u>
Total		\$ 1,198,990,018	\$ 156,895,257

## 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
12/31/2016	7/1/2018	7.40%	N/A	N/A	N/A
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
12/31/2016	7/1/2018	8.99%	N/A	N/A	N/A
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 table below provides the cost of benefit enhancements calculated at the current and prior years' valuations.

**Table 17: Cost of Benefits Enhancements**

Calculation as of	12/31/2016	12/31/2015
Increase in the ADEC for a 1% COLA*	0.31%	0.30%
Increase in the ADEC for a 0.01% Increase in the Defined Benefit Formula**	0.37%	0.36%

\* The 1% COLA calculated at the December 31, 2016 valuation would be effective July 1, 2018, and would result in an increase in AAL of \$136.6 million. The COLA would be paid in full to retired members and survivors of deceased members on the retirement roll on July 1, 2017 and would be prorated for retired members and survivors of deceased members who commence benefits after July 1, 2017 but before June 30, 2018.

\*\* 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 \$134.4 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 2018 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	12/31/2016	12/31/2015
<b>Assets</b>		
Current Actuarial Value of Assets		
Annuity Savings Fund	\$ 4,970,151,343	\$ 4,783,077,870
Pension Accumulation Fund	<u>19,454,776,477</u>	<u>18,866,233,403</u>
Total	\$ 24,424,927,820	\$ 23,649,311,273
Future Member Contributions to the Annuity Savings Fund	\$ 2,875,855,000	\$ 2,783,789,343
Prospective Contributions to the Pension Accumulation Fund		
Normal Contributions	\$ 2,376,500,245	\$ 2,237,052,535
Unfunded Accrued Liability Contributions	1,228,678,168	710,808,596
Undistributed Gain Contributions	<u>(25,767,865)</u>	<u>363,720,791</u>
Total	\$ 3,579,410,548	\$ 3,311,581,922
Total Assets	\$ 30,880,193,368	\$ 29,744,682,538
<b>Liabilities</b>		
Annuity Savings Fund		
Past Member Contributions	\$ 4,970,151,343	\$ 4,783,077,870
Future Member Contributions	<u>2,875,855,000</u>	<u>2,783,789,343</u>
Total Contributions	\$ 7,846,006,343	\$ 7,566,867,213
Pension Accumulation Fund		
Benefits Currently in Payment	\$ 12,575,121,366	\$ 11,789,387,592
Benefits to be Paid to		
Current Active Members	10,484,833,524	10,011,935,339
Reserve for Increases in Retirement Allowances effective July 1, 2017 (July 1, 2016 for December 31, 2015)	0	12,771,603
Reserve for Undistributed Gains/(Losses)	<u>(25,767,865)</u>	<u>363,720,791</u>
Total Benefits Payable	\$ 23,034,187,025	\$ 22,177,815,325
Total Liabilities	\$ 30,880,193,368	\$ 29,744,682,538

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, 2017 based on a valuation date of December 31, 2016.

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

The June 30, 2017 total pension liability presented in this section was determined by an actuarial valuation as of December 31, 2016, 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, 2016**

Group	Number
Retired members and survivors of deceased members currently receiving benefits	65,930
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	63,682
Active members	<u>126,647</u>
Total	256,259

## 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, 2017
<b>Total Pension Liability</b>	
Service Cost	\$ 656,231,000
Interest	1,803,590,000
Changes of Benefit Terms	0
Difference between Expected and Actual Experience	73,083,000
Change of Assumptions	138,096,000
Benefit Payments, including Refund of Member Contributions	<u>(1,322,277,000)</u>
Net Change in Total Pension Liability	\$ 1,348,723,000
Total Pension Liability - Beginning of Year	\$ 24,882,010,000
Total Pension Liability - End of Year	\$ 26,230,733,000
<b>Plan Fiduciary Net Position</b>	
Employer Contributions	\$ 461,329,000
Member Contributions	391,459,000
Net Investment Income	2,413,758,000
Benefit Payments, including Refund of Member Contributions	(1,322,277,000)
Administrative Expenses	(4,264,000)
Other	<u>3,330,000</u>
Net Change in Fiduciary Net Position	\$ 1,943,335,000
Plan Fiduciary Net Position - Beginning of Year	\$ 22,759,675,000
Plan Fiduciary Net Position - End of Year	\$ 24,703,010,000

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

Calculation as of	June 30, 2017	June 30, 2016
Total Pension Liability	\$ 26,230,733,000	\$ 24,882,010,000
Plan Fiduciary Net Position	<u>24,703,010,000</u>	<u>22,759,675,000</u>
Net Pension Liability (Asset)	\$ 1,527,723,000	\$ 2,122,335,000
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	94.18%	91.47%

## 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, 2017 to Changes in the Discount Rate**

	1% Decrease	Current	1% Increase
Discount Rate	6.20%	7.20%	8.20%
Net Pension Liability (Asset)	4,586,259,000	1,527,723,000	(1,025,189,000)

The discount rate used to measure the total pension liability was 7.20%. The projection of cash flows used to determine the discount rate assumed that for fiscal year ending 2018 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.

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

Valuation Date	12/31/2016
Actuarial Cost Method	Entry Age
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*	7.20%
Projected Salary Increases**	3.50% - 7.75%
*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 7.20% for all years
- 7.20% 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.

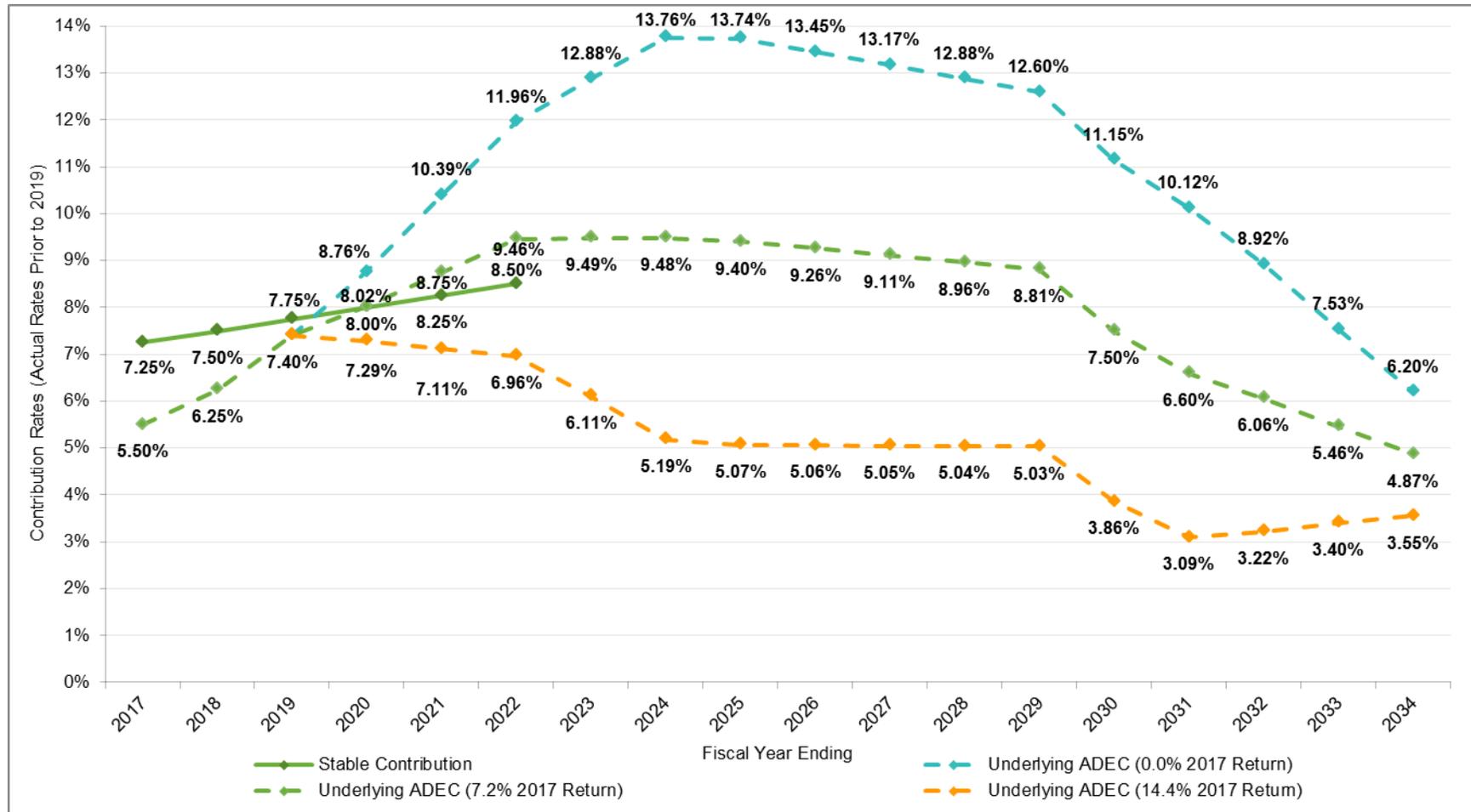
Contribution rates for law enforcement officers will be 0.75% higher than contribution rates for general employees.

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 2017. The second alternate deterministic projection is based on the same assumptions as the baseline deterministic projection except that it assumes a 14.4% 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.

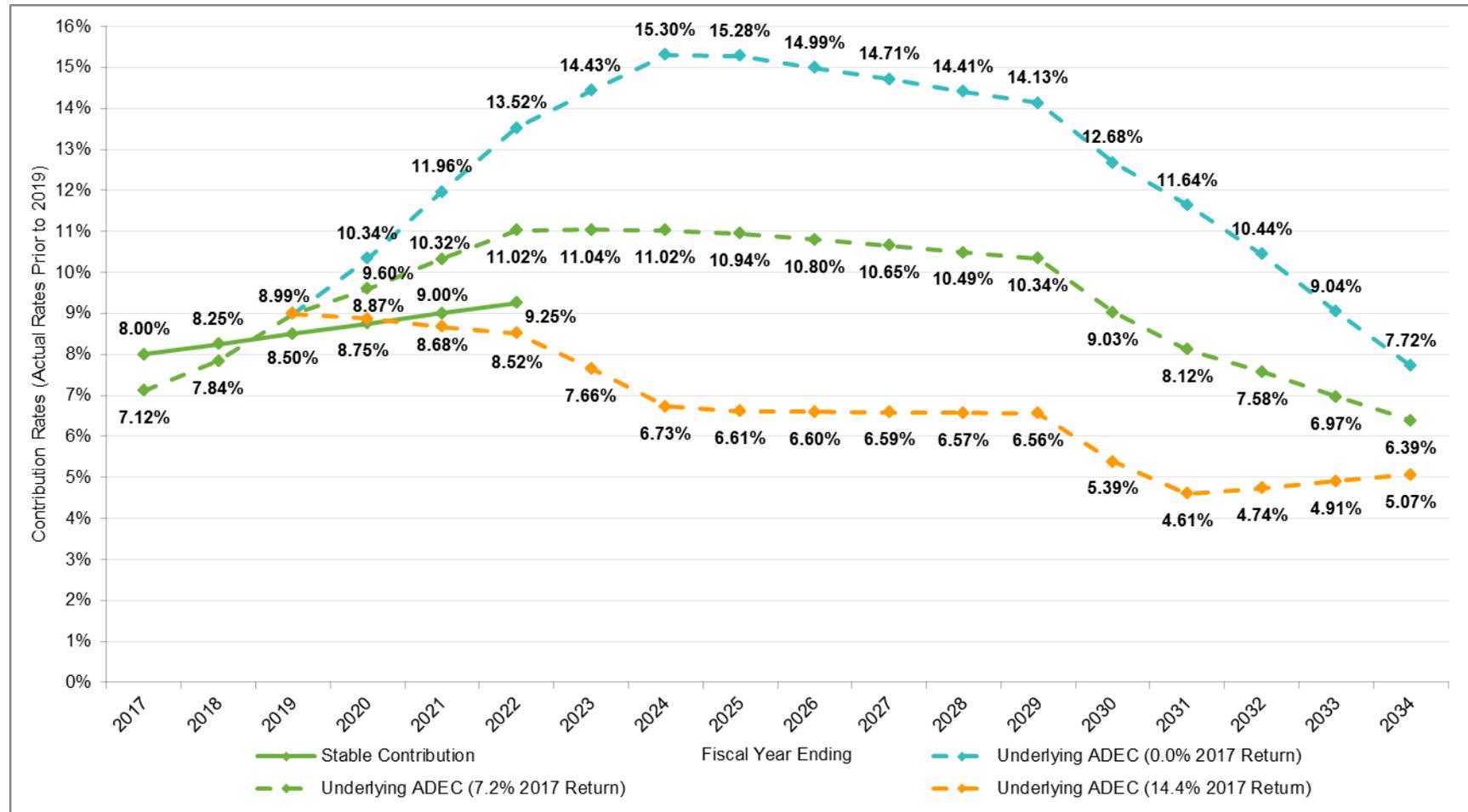
**Projected Actuarially Determined Employer Contribution Rates for General Employees and Firefighters**



## 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.

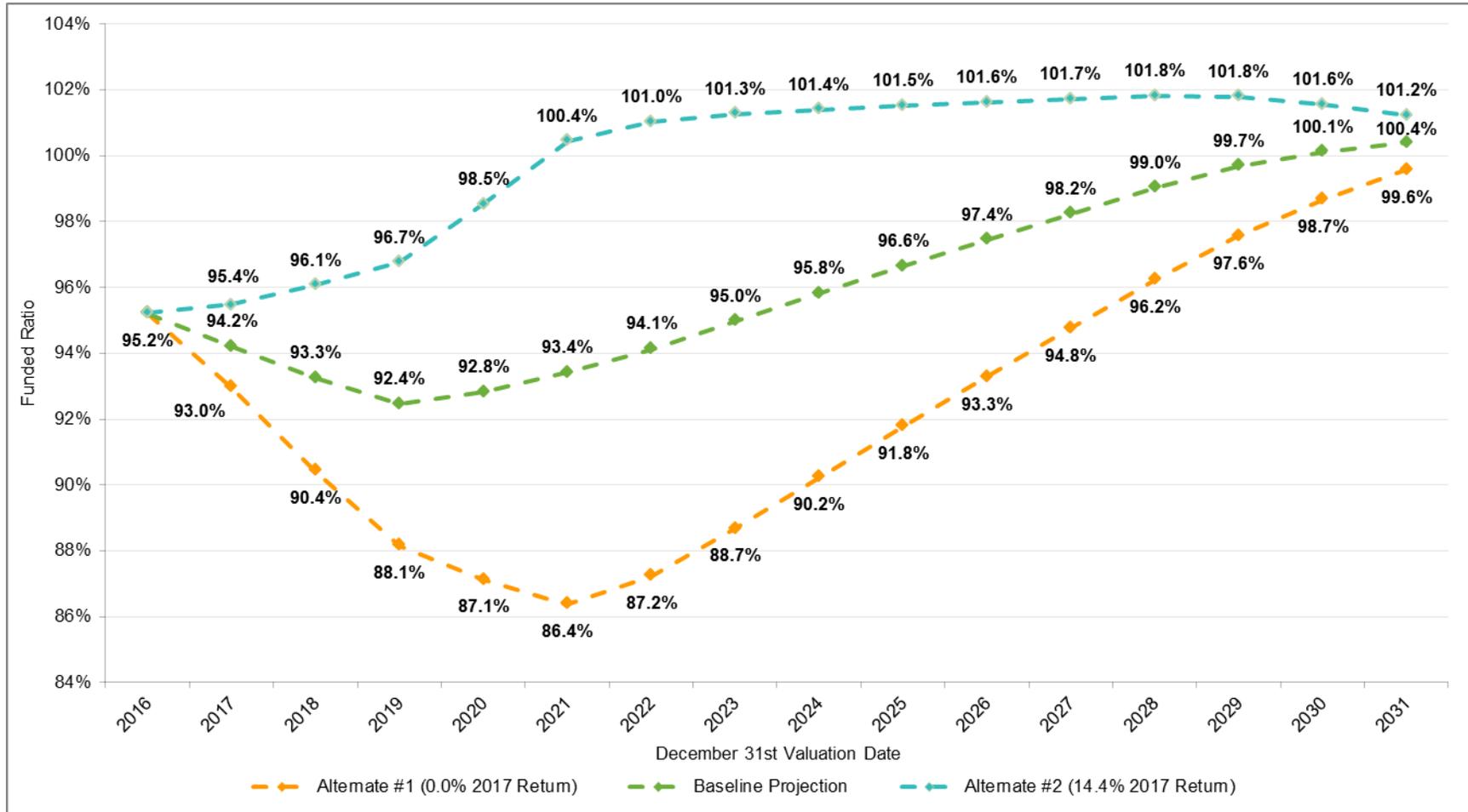
**Projected Actuarially Determined Employer Contribution Rates for Law Enforcement Officers**



## 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

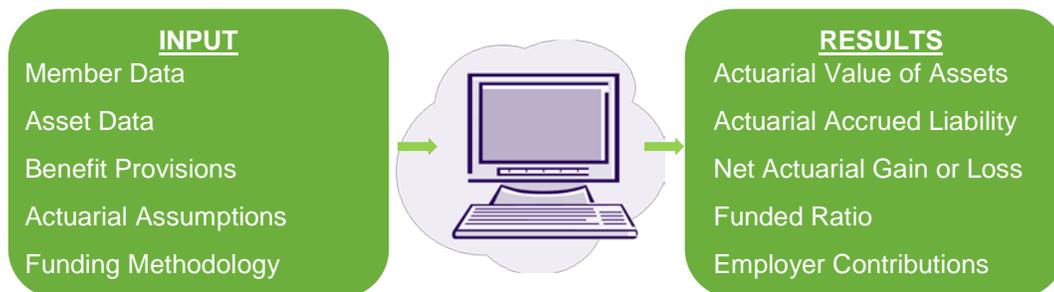
### Purpose of an Actuarial Valuation

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 (the "State Plan") 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 further "the normal rate of contribution shall be determined by the actuary after each valuation."

### 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. 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

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

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.

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

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

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 Appendix A: Valuation Process and Glossary of Actuarial Terms

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 of 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. For the aggressive North Carolina contribution policy to be effective, the amounts that Conduent calculates

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

need to be contributed. With very limited exception, North Carolina has contributed the amounts that Conduent has calculated, which has resulted in the North Carolina Retirement Systems being among the best funded in the United States.

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 7.20% 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,

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

a longer projection would show the funded ratio trend to 100% much faster than other Public Retirement Systems.

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. Conduent works with the North Carolina Retirement 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 25) 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 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.

**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. Note that in practice, this number is rarely discussed.*

## 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, 2016**

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	1,101	3,217	43	0	0	0	0	0	0	0	4,361
	7,058	30,084	36,916	0	0	0	0	0	0	0	24,338
25 to 29	1,268	8,609	2,533	70	0	0	0	0	0	0	12,480
	7,789	35,213	41,810	42,490	0	0	0	0	0	0	33,806
30 to 34	881	5,984	5,472	2,389	58	0	0	0	0	0	14,784
	8,142	37,547	44,276	47,320	50,407	0	0	0	0	0	39,915
35 to 39	620	4,600	4,004	4,323	1,718	31	0	0	0	0	15,296
	8,475	38,238	45,533	49,977	53,319	57,174	0	0	0	0	43,991
40 to 44	547	3,886	3,320	3,591	3,995	1,363	39	0	0	0	16,741
	8,733	38,731	45,179	49,858	56,753	60,175	63,136	0	0	0	47,520
45 to 49	472	3,656	3,246	3,305	3,402	3,697	1,491	39	0	0	19,308
	8,425	38,488	44,884	49,950	55,439	63,440	65,008	64,314	0	0	50,655
50 to 54	417	3,015	2,740	2,812	2,561	2,267	2,519	524	9	0	16,864
	8,612	39,042	44,380	48,112	52,065	59,249	66,339	66,688	64,220	0	50,313
55 to 59	318	2,418	2,308	2,458	2,234	1,705	1,567	781	185	5	13,979
	8,318	38,905	44,798	47,742	50,403	55,939	63,091	69,509	70,981	58,678	49,504
60 to 64	138	1,393	1,552	1,649	1,459	1,086	864	392	216	71	8,820
	7,496	38,330	43,686	47,502	49,812	53,948	57,588	68,879	70,789	75,997	48,670
65 to 69	47	473	578	591	469	269	229	118	73	66	2,913
	6,898	34,328	42,797	47,442	51,324	52,880	61,149	63,937	80,339	81,645	48,209
70 & Up	24	224	234	228	156	90	53	40	22	30	1,101
	3,899	23,338	30,215	38,697	45,075	46,787	55,885	59,086	63,364	87,046	37,954
Total	5,833	37,475	26,030	21,416	16,052	10,508	6,762	1,894	505	172	126,647
	7,975	36,781	44,271	48,750	53,549	59,483	63,899	67,924	71,799	79,588	45,138

## 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, 2016**

Age	Men		Women	
	Number	Compensation	Number	Compensation
18	10	\$ 88,430	2	\$ 46,570
19	63	885,859	5	69,880
20	168	2,839,203	42	761,311
21	306	6,036,824	84	1,217,854
22	541	12,279,519	201	3,797,364
23	814	21,361,388	404	8,268,401
24	1,101	32,732,960	620	15,752,642
25	1,343	41,908,967	751	20,641,605
26	1,532	52,250,302	875	26,526,642
27	1,612	57,027,106	966	30,318,055
28	1,640	60,361,260	1,053	33,822,145
29	1,666	63,022,811	1,042	36,029,124
30	1,710	67,319,229	1,107	38,572,098
31	1,797	74,157,711	1,155	40,738,136
32	1,800	75,716,356	1,181	43,332,067
33	1,717	73,452,262	1,266	48,016,576
34	1,832	80,776,835	1,219	48,022,074
35	1,805	80,683,445	1,276	50,704,270
36	1,764	80,123,948	1,268	51,691,018
37	1,704	77,285,887	1,272	51,992,206
38	1,716	81,434,282	1,436	59,574,958
39	1,703	81,750,537	1,352	57,642,608
40	1,855	90,067,032	1,405	60,111,649
41	1,757	88,294,460	1,331	57,168,793
42	1,971	100,066,678	1,484	64,696,584
43	1,937	99,953,278	1,508	67,012,010
44	2,010	103,883,036	1,483	64,272,842
45	2,302	123,151,602	1,617	72,534,658
46	2,329	127,987,507	1,833	82,160,796
47	2,204	121,135,228	1,732	78,934,726
48	2,056	114,653,676	1,569	70,426,705
49	2,062	112,933,298	1,604	74,126,868
50	1,894	104,171,595	1,559	71,659,951
51	1,770	97,445,687	1,594	73,115,846
52	1,788	96,765,504	1,597	72,747,631
53	1,789	97,998,206	1,639	74,847,357
54	1,619	86,391,082	1,615	73,340,405
55	1,494	80,726,632	1,593	75,296,139
56	1,367	72,411,545	1,579	71,330,211
57	1,257	66,660,132	1,492	68,639,703

## 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, 2016 (continued)**

Age	Men		Women	
	Number	Compensation	Number	Compensation
58	1,249	\$ 67,987,479	1,415	\$ 64,937,718
59	1,160	61,270,956	1,373	62,750,308
60	1,151	59,551,489	1,235	56,454,552
61	1,009	51,247,809	1,103	48,922,792
62	810	43,311,604	971	43,457,852
63	654	35,429,499	727	32,763,225
64	539	29,447,106	621	28,678,469
65	494	27,985,947	507	22,382,694
66	348	18,520,352	342	15,372,251
67	251	12,902,884	243	10,822,645
68	211	10,629,265	185	8,020,005
69	164	7,413,191	168	6,383,467
70	155	7,296,498	134	5,612,158
71	97	4,333,604	77	2,750,720
72	66	2,669,485	49	1,789,903
73	64	2,562,226	56	1,822,565
74	61	2,300,027	47	1,646,660
75	42	1,234,980	23	698,004
76	27	1,189,067	16	479,704
77	24	694,871	13	372,601
78	17	417,841	9	285,711
79	30	1,176,530	11	253,523
80	17	369,973	6	215,752
81	6	136,048	7	180,500
82	5	187,237	12	320,847
83	6	148,360	1	43,368
84	5	123,231	3	34,032
85	3	93,067	3	86,830
86	1	33,904		
87	2	61,018		
88	2	42,171	1	49,743
89	1	44,076		
90	1	16,066		
92			1	14,899
Total	70,477	\$ 3,359,019,160	56,170	\$ 2,357,563,976

## 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, 2016**

Service	Men		Women	
	Number	Compensation	Number	Compensation
0	2,947	\$ 23,861,409	2,886	\$ 22,655,521
1	6,182	189,736,284	5,783	170,311,868
2	5,187	205,654,174	4,745	177,255,433
3	4,404	178,768,453	3,685	142,761,217
4	3,939	167,747,327	3,550	146,139,447
5	3,412	148,771,101	2,680	107,570,386
6	2,782	123,245,006	2,105	87,673,671
7	2,546	119,411,275	1,897	81,453,708
8	2,773	129,213,867	1,951	84,854,011
9	3,298	158,413,539	2,586	111,765,795
10	2,878	140,121,179	2,194	97,528,205
11	2,757	138,127,685	2,095	95,502,411
12	2,544	129,742,183	1,782	83,194,165
13	2,233	115,692,262	1,663	77,909,958
14	1,930	102,274,081	1,340	63,935,019
15	1,791	97,802,948	1,406	67,809,870
16	1,915	105,873,367	1,489	70,763,322
17	1,926	110,341,752	1,518	74,119,893
18	1,866	109,000,207	1,365	67,783,887
19	1,587	94,757,855	1,189	61,318,658
20	1,484	89,857,290	995	52,746,447
21	1,301	82,543,206	956	49,798,992
22	1,261	80,607,612	915	49,567,616
23	1,153	74,857,276	816	44,759,587
24	969	64,699,341	658	35,605,337
25	816	53,522,727	572	31,384,415
26	877	58,737,204	575	33,623,717
27	926	63,865,768	566	32,974,174
28	808	55,358,687	526	30,738,266
29	627	43,645,726	469	28,231,724
30	373	25,736,946	287	17,281,339
31	236	17,285,042	224	13,898,035
32	204	15,389,029	159	10,328,017
33	103	7,638,495	117	6,966,118
34	98	7,891,992	93	6,232,853
35	81	6,579,019	51	3,175,731
36	70	5,744,590	56	3,283,570
37	47	3,691,138	55	3,372,590
38	36	3,267,872	43	2,650,218
39	36	2,600,630	30	1,893,277

## 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, 2016 (continued)**

Service	Men		Women	
	Number	Compensation	Number	Compensation
40	21	\$ 1,929,134	25	\$ 1,630,082
41	18	1,894,080	19	1,075,379
42	10	771,853	11	925,653
43	8	623,831	13	1,061,124
44	2	294,018	8	420,633
45	3	186,974	9	707,227
46	4	379,556	6	460,252
47	2	226,801	3	237,164
48	2	227,114		
49	2	196,966		
50	2	213,289	1	90,451
51			1	44,531
55			1	46,600
62			1	46,412
<b>Total</b>	<b>70,477</b>	<b>\$ 3,359,019,160</b>	<b>56,170</b>	<b>\$ 2,357,563,976</b>

## 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, 2016**

Age	Men		Women	
	Number	Contributions	Number	Contributions
18	3	\$ 406	1	\$ 931
19	6	2,270		
20	19	15,936	6	4,265
21	57	46,107	13	9,186
22	109	114,428	38	47,538
23	188	291,498	84	105,355
24	266	509,629	151	242,257
25	358	771,430	217	486,325
26	465	1,395,897	339	829,264
27	571	1,985,888	409	1,213,247
28	619	2,471,969	521	1,689,504
29	696	3,082,468	610	2,185,286
30	801	3,811,273	674	3,024,460
31	776	4,248,973	701	3,584,291
32	908	5,739,363	856	4,828,188
33	845	5,785,931	814	5,223,368
34	924	6,879,918	934	6,568,778
35	865	7,516,865	905	7,142,648
36	854	7,180,580	993	7,709,648
37	862	8,254,493	1,067	8,786,470
38	789	8,124,255	1,028	9,377,382
39	811	9,034,172	1,025	9,356,669
40	864	10,540,029	1,007	10,674,857
41	781	9,703,764	997	10,576,966
42	801	10,819,519	1,105	12,247,756
43	865	12,095,489	1,084	12,984,342
44	860	12,931,040	1,048	13,222,159
45	890	12,797,929	1,054	14,387,575
46	1,012	15,270,080	1,213	16,207,388
47	932	15,929,896	1,130	16,029,041
48	840	14,093,143	1,050	16,325,138
49	786	14,188,391	932	14,134,358
50	766	13,623,938	896	14,072,820
51	704	11,329,383	905	14,837,005
52	759	13,664,174	893	15,500,976
53	658	13,263,503	902	15,501,038
54	623	11,063,562	931	16,072,059
55	636	12,015,025	875	15,943,893
56	585	10,118,706	847	15,216,711
57	516	10,289,685	802	15,385,646

## 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, 2016 (continued)**

Age	Men		Women	
	Number	Contributions	Number	Contributions
58	453	\$ 8,914,837	800	\$ 15,720,903
59	459	9,766,286	807	16,542,290
60	405	8,218,450	643	13,784,697
61	377	7,261,682	561	11,235,702
62	378	6,491,239	521	10,266,338
63	279	3,917,746	442	7,919,291
64	257	4,071,096	412	7,733,026
65	215	2,747,200	328	5,032,419
66	140	1,587,216	221	3,410,959
67	140	1,270,500	185	2,808,051
68	122	1,420,731	172	1,754,440
69	117	968,007	118	1,193,582
70	82	763,578	104	910,617
71	41	249,232	33	255,683
72	14	90,959	9	82,616
73	9	100,537	7	80,316
74	12	142,025	9	149,990
75	8	19,931	5	10,101
76	5	17,926	4	64,076
77	12	125,543	2	1,473
78	5	11,768	4	36,032
79	1	10,606	4	16,264
80	2	11,715		
81	6	72,182	1	22,546
82	3	6,848	4	13,026
83	3	7,720		
84	5	11,829	1	50,361
85	1	3,776		
86	1	13		
87	3	4,442		
99	2	617		
100	1	406		
Total	29,228	\$ 359,287,648	34,454	\$ 430,829,587

## 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, 2016**

Age	Men		Women	
	Number	Allowances	Number	Allowances
18	7	\$ 89,369		
19	3	19,041	1	\$ 65,114
20	1	10,664		
22	1	7,872	1	26,660
23	1	11,727		
24	1	1,750	3	22,366
25	1	2,031	4	66,518
26	1	11,311	4	27,118
27	4	54,230	3	21,813
28			5	45,532
29	4	20,998	4	9,367
30	3	20,089	2	30,284
31	4	30,049	1	5,085
32	6	71,130	5	25,362
33	3	76,750	3	32,644
34	5	78,144	9	72,230
35	8	88,334	7	62,864
36	7	76,549	7	102,890
37	5	55,242	3	27,824
38	7	83,814	9	126,213
39	5	19,731	5	72,598
40	4	45,231	8	56,301
41	7	58,432	8	66,622
42	4	33,550	18	173,687
43	14	179,596	14	130,439
44	5	58,527	11	133,109
45	5	43,101	12	209,525
46	13	106,641	17	139,949
47	16	290,388	24	261,522
48	22	505,708	25	234,598
49	58	1,677,353	39	504,104
50	131	4,587,456	43	865,212
51	204	6,573,699	91	1,899,921
52	295	9,643,609	128	2,919,275
53	374	12,744,769	181	4,380,121

## 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, 2016 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
54	381	\$ 12,975,090	208	\$ 4,897,799
55	502	16,282,733	294	7,966,939
56	611	19,780,344	380	9,852,813
57	606	19,959,729	431	10,835,409
58	601	18,803,263	443	11,297,901
59	634	19,507,905	528	13,990,872
60	762	23,586,161	602	15,170,114
61	824	24,064,337	739	16,816,334
62	967	26,855,026	937	19,184,674
63	1,104	27,807,830	1,075	19,989,736
64	1,192	28,836,305	1,193	21,491,577
65	1,257	28,795,563	1,312	21,350,302
66	1,399	30,436,096	1,402	22,543,536
67	1,321	28,468,951	1,441	23,223,509
68	1,360	28,869,846	1,438	22,090,356
69	1,378	27,945,421	1,479	22,689,126
70	1,431	28,024,935	1,559	23,467,957
71	935	18,022,040	1,115	16,324,511
72	955	18,178,764	1,102	16,504,595
73	797	14,651,159	999	13,453,884
74	888	16,381,355	1,017	13,721,419
75	685	12,050,548	882	11,483,561
76	616	10,807,878	756	9,583,252
77	579	9,865,795	744	9,784,475
78	515	8,817,968	719	9,014,975
79	494	8,257,467	643	7,936,560
80	481	8,187,747	648	7,607,725
81	429	7,188,720	588	7,527,617
82	394	6,307,209	527	6,243,094
83	340	5,094,207	479	5,377,068
84	278	4,415,938	451	5,043,789
85	272	4,199,568	426	4,661,524
86	214	3,361,930	402	4,702,086
87	180	2,928,425	357	3,532,696
88	152	2,039,896	325	4,033,695

## 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, 2016 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
89	134	\$ 2,153,496	269	\$ 2,916,481
90	106	1,567,120	243	2,531,406
91	86	1,318,196	167	1,927,354
92	59	871,439	150	1,457,978
93	40	546,908	118	1,161,183
94	42	599,806	95	996,283
95	29	383,010	77	707,237
96	15	197,761	53	459,663
97	3	22,929	49	458,006
98	7	206,674	36	328,911
99	4	36,807	26	224,550
100	11	138,641	25	147,750
Total	27,299	\$ 617,175,821	29,644	\$ 469,529,149

## 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, 2016**

Annuity Type	Men		Women	
	Number	Allowances	Number	Allowances
Maximum	9,050	\$ 184,581,442	15,133	\$ 234,972,281
Option 1	306	6,045,005	487	5,439,783
Option 2	5,752	129,187,406	1,367	19,209,609
Option 3	1,720	42,903,474	786	13,255,397
Option 4	2,499	62,074,045	2,979	61,340,547
Option 5-2	50	1,000,058	13	90,208
Option 5-3	22	542,688	19	271,787
Option 6-2	4,974	126,361,174	1,864	35,036,247
Option 6-3	2,005	54,896,633	1,502	32,920,423
Other	9	221,327	2	18,480
Survivors of Deceased Members	912	9,362,569	5,492	66,974,387
Total	27,299	\$ 617,175,821	29,644	\$ 469,529,149

## 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, 2016**

Age	Men		Women	
	Number	Allowances	Number	Allowances
27	1	\$ 15,212		
29	2	43,555		
30			1	\$ 20,664
31	6	140,218	1	22,268
32	1	20,684		
33	6	115,221	4	76,833
34	11	212,542	4	93,170
35	10	186,909	3	59,104
36	15	315,567	8	208,297
37	20	404,574	6	134,279
38	23	450,680	6	129,922
39	19	379,581	13	241,976
40	17	361,067	17	312,488
41	36	747,787	15	305,104
42	28	628,495	17	338,512
43	39	899,634	15	303,975
44	48	981,571	28	545,103
45	72	1,563,004	35	721,201
46	84	1,866,368	31	614,645
47	91	1,916,241	55	1,066,089
48	101	2,267,636	48	859,266
49	86	1,833,100	62	1,319,062
50	116	2,478,350	69	1,377,796
51	121	2,433,056	74	1,352,751
52	117	2,565,640	76	1,544,434
53	152	3,201,298	102	2,003,830
54	170	3,418,347	87	1,606,811
55	185	3,486,373	122	2,250,896
56	157	2,910,858	117	2,103,885
57	168	3,177,840	124	2,305,175
58	156	3,035,827	156	2,577,394
59	158	2,823,690	127	2,119,199
60	195	3,685,118	136	2,249,540
61	190	3,590,098	159	2,632,181
62	218	4,257,975	143	2,401,654
63	210	4,112,346	141	2,285,865
64	191	3,753,630	137	2,187,283
65	239	5,142,441	154	2,387,473
66	210	4,151,134	107	1,729,431

## 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, 2016 (continued)**

Age	Men		Women	
	Number	Allowances	Number	Allowances
67	215	\$ 4,600,949	113	\$ 1,645,855
68	197	4,001,769	134	2,166,172
69	187	3,950,947	105	1,442,076
70	181	3,674,075	113	1,642,868
71	143	2,805,128	98	1,383,143
72	137	2,735,038	86	1,182,626
73	103	1,949,428	85	1,035,832
74	105	2,030,706	77	1,005,449
75	74	1,426,566	47	500,200
76	73	1,208,032	50	683,718
77	57	983,048	48	552,875
78	52	848,514	43	483,565
79	46	690,804	30	333,316
80	35	611,578	22	234,442
81	36	550,532	23	259,939
82	25	372,312	15	142,421
83	21	294,042	17	153,131
84	22	294,045	11	81,540
85	14	151,930	6	38,456
86	13	210,464	5	48,745
87	8	127,647	7	66,115
88	2	25,459	1	8,330
89	2	36,571	3	25,658
90	6	98,825	2	20,270
91	5	89,655	1	5,028
92	3	48,788	2	18,306
93	1	9,045	2	20,088
94	2	55,607	1	10,969
95			1	4,779
96	1	5,585	3	17,524
97			1	7,887
<b>Total</b>	<b>5,435</b>	<b>\$ 107,460,756</b>	<b>3,552</b>	<b>\$ 57,708,879</b>

## 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, 2016**

Annuity Type	Men		Women	
	Number	Allowances	Number	Allowances
Maximum	3,896	\$ 81,974,917	3,080	\$ 50,947,691
Option 1	148	3,047,071	68	930,935
Option 2	331	4,431,665	66	801,684
Option 3	344	5,524,083	76	1,053,667
Option 4	9	244,072	10	223,500
Option 5-2	4	81,403		
Option 5-3	9	112,251	1	7,003
Option 6-2	269	4,216,242	86	1,177,852
Option 6-3	417	7,662,398	165	2,566,547
Other	8	166,654		
Total	5,435	\$ 107,460,756	3,552	\$ 57,708,879

## 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 he has attained 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 his average final compensation multiplied by the number of years of his creditable service.

#### Reduced Retirement Allowance

Condition for Allowance	A reduced retirement allowance is payable to any member who retires from service after he has attained age 60 (50) and completed 5 (15) years of creditable service (or in the case of a firefighter or rescue squad worker, after he has attained age 55 and five years of creditable service), but prior to becoming eligible for the unreduced retirement allowance.
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## 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 his average final compensation multiplied by the number of years of his creditable service at his 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).</p> <p>If a firefighter has not attained age 60 nor completed 30 or more years of service at the line of retirement, his allowance is the actuarial equivalent of the allowance payable at age 60.</p>
Disability Retirement Allowance	
Condition for Allowance	<p>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 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.</p>
Amount of Allowance	<p>On retirement for disability a member receives a service retirement allowance if he has attained age 65 (55) or attained age 60 and completed 25 years of creditable service or completed 30 years of creditable service; otherwise the allowance is equal to the retirement allowance calculated on the basis of his average final compensation at time of disability retirement and service projected to the earliest age at which he 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 his service projected to age 65.</p>
Deferred and Early Retirement Allowance	
Deferred Allowance	<p>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 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 his creditable service and compensation to the date of separation.</p>

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

### Early Allowance

If such a member other than a law enforcement officer has completed 20 or more years of creditable service, upon his attainment of age 50, he may elect to convert the deferred allowance into an allowance commencing immediately which is reduced by the lesser of:

- (i)  $\frac{5}{12}$  of 1% for each month by which his age is less than 60, plus  $\frac{1}{4}$  of 1% for each month by which his age is less than 65.
- (ii) 5% times the difference between 30 years and his creditable service at retirement.

### Return of Contributions

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

Upon the death of a member before retirement, his accumulated contributions, together with the full accumulated regular interest thereon, are paid to his 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), his 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 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 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 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

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.

### Other Death Benefits

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.

### Optional Arrangements at Retirement

In lieu of the full retirement allowance any member may, until the first payment of his allowance becomes normally due, elect to receive a reduced retirement allowance equal in value to the full allowance with the provision that:

Option 1 - A member retiring prior to July 1, 1993, may elect that at his death within 10 years from his retirement date, an amount equal to his accumulated contributions at retirement, less 1/120 for each month he has received a retirement allowance, is paid to his estate, or to person(s) designated by the member, or

Option 2 - At the death of the member his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement, or

Option 3 - At the death of the member one-half of his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement.

Option 4 - A member may elect to receive a retirement allowance in such amount that, together with his Social Security benefit, he will receive approximately the same income per annum before and after the earliest age at which he becomes eligible to receive the Social Security benefit.

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.

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.

## 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

For 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.

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.

Changes Since Prior Valuation

None.

## 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 7.20% was adopted by the Board of Trustees on April 20, 2017.

**Interest Rate:** 7.20% 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.

**Long-Term 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 of						
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 of

Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
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 of

Age	Withdrawal and Vesting*		Base Mortality**		Disability	
	Male	Female	Male	Female	Male	Female
25	.0500	.0500	.0005	.0002	.0006	.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	.0040	.0060
50	.0350	.0350	.0017	.0011	.0040	.0070
55	.0350	.0350	.0028	.0017	.0040	.0070
60	.0350	.0350	.0047	.0024	.0040	.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:

<b>Annual Rate of Salary Increase</b>			
<u>Service</u>	<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:

<b>Annual Rate of Death after Retirement</b> (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

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

**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 7.25% to 7.20%.

## 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
2017	\$ 23,308,818	\$ 362,929	\$ 448,302	\$ 1,403,370	\$ 10,260	\$ 1,656,925	\$ 24,363,344
2018	24,363,344	344,664	477,610	1,473,538	9,682	1,730,781	25,433,179
2019	25,433,179	328,814	486,666	1,546,061	9,195	1,805,020	26,498,423
2020	26,498,423	314,316	477,371	1,619,451	8,764	1,878,295	27,540,190
2021	27,540,190	301,006	469,628	1,693,482	8,371	1,949,528	28,558,499
2022	28,558,499	288,425	389,814	1,775,110	8,002	2,017,052	29,470,678
2023	29,470,678	275,629	428,762	1,861,451	7,637	2,080,615	30,386,596
2024	30,386,596	262,650	542,647	1,951,070	7,270	2,146,857	31,380,410
2025	31,380,410	249,440	548,759	2,041,623	6,901	2,215,023	32,345,108
2026	32,345,108	236,286	543,940	2,131,054	6,535	2,280,833	33,268,578
2027	33,268,578	223,270	531,220	2,219,426	6,173	2,343,298	34,140,767
2028	34,140,767	210,374	519,172	2,307,923	5,814	2,402,097	34,958,673
2029	34,958,673	197,553	461,241	2,395,287	5,458	2,456,215	35,672,937
2030	35,672,937	184,991	373,694	2,481,219	5,104	2,500,789	36,246,088
2031	36,246,088	172,695	309,689	2,564,909	4,757	2,536,287	36,695,093
2032	36,695,093	160,783	252,296	2,644,098	4,419	2,563,386	37,023,041
2033	37,023,041	149,170	193,715	2,720,469	4,088	2,581,833	37,223,202
2034	37,223,202	137,614	154,828	2,795,695	3,763	2,591,463	37,307,649
2035	37,307,649	126,147	136,277	2,869,177	3,445	2,593,890	37,291,341
2036	37,291,341	114,941	111,489	2,938,973	3,136	2,589,102	37,164,764
2037	37,164,764	103,980	83,125	3,000,353	2,835	2,576,383	36,925,064
2038	36,925,064	93,060	66,204	3,049,929	2,540	2,556,258	36,588,117
2039	36,588,117	82,708	57,602	3,094,011	2,258	2,529,779	36,161,937
2040	36,161,937	72,797	49,373	3,131,472	1,990	2,497,136	35,647,781
2041	35,647,781	63,196	41,314	3,165,636	1,733	2,458,295	35,043,217
2042	35,043,217	53,687	33,752	3,195,640	1,481	2,413,109	34,346,644
2043	34,346,644	44,641	27,059	3,218,849	1,245	2,361,581	33,559,831
2044	33,559,831	36,165	20,789	3,234,502	1,025	2,303,868	32,685,126
2045	32,685,126	28,085	14,853	3,242,816	816	2,240,107	31,724,539
2046	31,724,539	20,637	10,786	3,235,871	622	2,170,789	30,690,258
2047	30,690,258	15,218	8,181	3,207,313	466	2,097,053	29,602,931
2048	29,602,931	11,549	6,286	3,163,203	356	2,020,133	28,477,340
2049	28,477,340	8,854	4,847	3,108,260	274	1,940,891	27,323,398
2050	27,323,398	6,771	3,751	3,045,806	210	1,859,906	26,147,810
2051	26,147,810	5,149	2,942	2,975,974	159	1,777,650	24,957,418
2052	24,957,418	3,897	2,321	2,899,567	120	1,694,579	23,758,528
2053	23,758,528	2,927	1,859	2,817,350	90	1,611,119	22,556,993
2054	22,556,993	2,184	1,504	2,729,553	67	1,527,674	21,358,735
2055	21,358,735	1,616	959	2,636,519	49	1,444,659	20,169,401
2056	20,169,401	1,190	475	2,539,824	36	1,362,409	18,993,615
2057	18,993,615	867	333	2,361,213	26	1,284,056	17,917,632
2058	17,917,632	627	233	2,263,556	19	1,210,027	16,864,944
2059	16,864,944	452	157	2,165,206	13	1,137,703	15,838,037
2060	15,838,037	322	104	2,066,911	10	1,067,237	14,838,779
2061	14,838,779	227	67	1,969,023	7	998,750	13,868,793
2062	13,868,793	159	42	1,871,851	5	932,344	12,929,482
2063	12,929,482	109	26	1,775,676	3	868,114	12,022,052
2064	12,022,052	74	15	1,680,733	2	806,136	11,147,542
2065	11,147,542	50	6	1,587,254	2	746,477	10,306,819
2066	10,306,819	32	2	1,495,429	1	689,192	9,500,615

## 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
2067	\$ 9,500,615	\$ 18	\$ 1	\$ 1,405,429	\$ 1	\$ 634,329	\$ 8,729,533
2068	8,729,533	9	1	1,317,403	0	581,924	7,994,064
2069	7,994,064	4	1	1,231,503	0	532,008	7,294,574
2070	7,294,574	2	0	1,147,870	0	484,605	6,631,311
2071	6,631,311	1	0	1,066,643	0	439,722	6,004,391
2072	6,004,391	0	0	987,948	0	397,369	5,413,812
2073	5,413,812	0	0	911,896	0	357,536	4,859,452
2074	4,859,452	0	0	838,595	0	320,217	4,341,074
2075	4,341,074	0	0	768,140	0	285,384	3,858,318
2076	3,858,318	0	0	700,621	0	253,015	3,410,712
2077	3,410,712	0	0	636,119	0	223,069	2,997,662
2078	2,997,662	0	0	574,714	0	195,502	2,618,450
2079	2,618,450	0	0	516,480	0	170,258	2,272,228
2080	2,272,228	0	0	461,486	0	147,276	1,958,018
2081	1,958,018	0	0	409,798	0	126,481	1,674,701
2082	1,674,701	0	0	361,477	0	107,791	1,421,015
2083	1,421,015	0	0	316,570	0	91,115	1,195,560
2084	1,195,560	0	0	275,109	0	76,349	996,800
2085	996,800	0	0	237,105	0	63,382	823,077
2086	823,077	0	0	202,538	0	52,097	672,636
2087	672,636	0	0	171,358	0	42,368	543,646
2088	543,646	0	0	143,484	0	34,067	434,229
2089	434,229	0	0	118,807	0	27,062	342,484
2090	342,484	0	0	97,192	0	21,220	266,512
2091	266,512	0	0	78,479	0	16,413	204,446
2092	204,446	0	0	62,488	0	12,510	154,468
2093	154,468	0	0	49,013	0	9,388	114,843
2094	114,843	0	0	37,832	0	6,931	83,942
2095	83,942	0	0	28,707	0	5,028	60,263
2096	60,263	0	0	21,391	0	3,582	42,454
2097	42,454	0	0	15,637	0	2,504	29,321
2098	29,321	0	0	11,201	0	1,714	19,834
2099	19,834	0	0	7,855	0	1,151	13,130
2100	13,130	0	0	5,386	0	755	8,499
2101	8,499	0	0	3,608	0	484	5,375
2102	5,375	0	0	2,359	0	304	3,320
2103	3,320	0	0	1,504	0	185	2,001
2104	2,001	0	0	935	0	111	1,177
2105	1,177	0	0	566	0	64	675
2106	675	0	0	334	0	37	378
2107	378	0	0	192	0	20	206
2108	206	0	0	108	0	12	110
2109	110	0	0	59	0	6	57
2110	57	0	0	31	0	2	28
2111	28	0	0	16	0	2	14
2112	14	0	0	8	0	0	6
2113	6	0	0	4	0	1	3
2114	3	0	0	2	0	0	1
2115	1	0	0	1	0	1	1
2116	1	0	0	0	0	0	1

## 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 7.20%	Unfunded Payments at 3.13%	Using Single Discount Rate of 7.20%
2017	\$ 23,308,818	\$ 1,403,370	\$ 1,403,370	\$ 0	\$ 1,355,423	\$ 0	\$ 1,355,423
2018	24,363,344	1,473,538	1,473,538	0	1,327,606	0	1,327,606
2019	25,433,179	1,546,061	1,546,061	0	1,299,390	0	1,299,390
2020	26,498,423	1,619,451	1,619,451	0	1,269,656	0	1,269,656
2021	27,540,190	1,693,482	1,693,482	0	1,238,523	0	1,238,523
2022	28,558,499	1,775,110	1,775,110	0	1,211,027	0	1,211,027
2023	29,470,678	1,861,451	1,861,451	0	1,184,638	0	1,184,638
2024	30,386,596	1,951,070	1,951,070	0	1,158,276	0	1,158,276
2025	31,380,410	2,041,623	2,041,623	0	1,130,628	0	1,130,628
2026	32,345,108	2,131,054	2,131,054	0	1,100,890	0	1,100,890
2027	33,268,578	2,219,426	2,219,426	0	1,069,536	0	1,069,536
2028	34,140,767	2,307,923	2,307,923	0	1,037,484	0	1,037,484
2029	34,958,673	2,395,287	2,395,287	0	1,004,437	0	1,004,437
2030	35,672,937	2,481,219	2,481,219	0	970,589	0	970,589
2031	36,246,088	2,564,909	2,564,909	0	935,939	0	935,939
2032	36,695,093	2,644,098	2,644,098	0	900,033	0	900,033
2033	37,023,041	2,720,469	2,720,469	0	863,833	0	863,833
2034	37,223,202	2,795,695	2,795,695	0	828,097	0	828,097
2035	37,307,649	2,869,177	2,869,177	0	792,782	0	792,782
2036	37,291,341	2,938,973	2,938,973	0	757,526	0	757,526
2037	37,164,764	3,000,353	3,000,353	0	721,405	0	721,405
2038	36,925,064	3,049,929	3,049,929	0	684,072	0	684,072
2039	36,588,117	3,094,011	3,094,011	0	647,350	0	647,350
2040	36,161,937	3,131,472	3,131,472	0	611,183	0	611,183
2041	35,647,781	3,165,636	3,165,636	0	576,353	0	576,353
2042	35,043,217	3,195,640	3,195,640	0	542,739	0	542,739
2043	34,346,644	3,218,849	3,218,849	0	509,963	0	509,963
2044	33,559,831	3,234,502	3,234,502	0	478,025	0	478,025
2045	32,685,126	3,242,816	3,242,816	0	447,065	0	447,065
2046	31,724,539	3,235,871	3,235,871	0	416,145	0	416,145
2047	30,690,258	3,207,313	3,207,313	0	384,769	0	384,769
2048	29,602,931	3,163,203	3,163,203	0	353,990	0	353,990
2049	28,477,340	3,108,260	3,108,260	0	324,479	0	324,479
2050	27,323,398	3,045,806	3,045,806	0	296,604	0	296,604
2051	26,147,810	2,975,974	2,975,974	0	270,339	0	270,339
2052	24,957,418	2,899,567	2,899,567	0	245,707	0	245,707
2053	23,758,528	2,817,350	2,817,350	0	222,706	0	222,706
2054	22,556,993	2,729,553	2,729,553	0	201,274	0	201,274
2055	21,358,735	2,636,519	2,636,519	0	181,356	0	181,356
2056	20,169,401	2,539,824	2,539,824	0	162,971	0	162,971
2057	18,993,615	2,361,213	2,361,213	0	141,334	0	141,334
2058	17,917,632	2,263,556	2,263,556	0	126,389	0	126,389
2059	16,864,944	2,165,206	2,165,206	0	112,777	0	112,777
2060	15,838,037	2,066,911	2,066,911	0	100,427	0	100,427
2061	14,838,779	1,969,023	1,969,023	0	89,245	0	89,245
2062	13,868,793	1,871,851	1,871,851	0	79,142	0	79,142
2063	12,929,482	1,775,676	1,775,676	0	70,034	0	70,034
2064	12,022,052	1,680,733	1,680,733	0	61,837	0	61,837
2065	11,147,542	1,587,254	1,587,254	0	54,475	0	54,475
2066	10,306,819	1,495,429	1,495,429	0	47,877	0	47,877

## Appendix E: GASB 67 Fiduciary Net Position Projection

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

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 3.13%	Using Single Discount Rate of 7.20%
2067	\$ 9,500,615	\$ 1,405,429	\$ 1,405,429	\$ 0	\$ 41,973	\$ 0	\$ 41,973
2068	8,729,533	1,317,403	1,317,403	0	36,702	0	36,702
2069	7,994,064	1,231,503	1,231,503	0	32,004	0	32,004
2070	7,294,574	1,147,870	1,147,870	0	27,827	0	27,827
2071	6,631,311	1,066,643	1,066,643	0	24,121	0	24,121
2072	6,004,391	987,948	987,948	0	20,841	0	20,841
2073	5,413,812	911,896	911,896	0	17,945	0	17,945
2074	4,859,452	838,595	838,595	0	15,394	0	15,394
2075	4,341,074	768,140	768,140	0	13,154	0	13,154
2076	3,858,318	700,621	700,621	0	11,192	0	11,192
2077	3,410,712	636,119	636,119	0	9,479	0	9,479
2078	2,997,662	574,714	574,714	0	7,989	0	7,989
2079	2,618,450	516,480	516,480	0	6,697	0	6,697
2080	2,272,228	461,486	461,486	0	5,582	0	5,582
2081	1,958,018	409,798	409,798	0	4,624	0	4,624
2082	1,674,701	361,477	361,477	0	3,805	0	3,805
2083	1,421,015	316,570	316,570	0	3,108	0	3,108
2084	1,195,560	275,109	275,109	0	2,520	0	2,520
2085	996,800	237,105	237,105	0	2,026	0	2,026
2086	823,077	202,538	202,538	0	1,614	0	1,614
2087	672,636	171,358	171,358	0	1,274	0	1,274
2088	543,646	143,484	143,484	0	995	0	995
2089	434,229	118,807	118,807	0	769	0	769
2090	342,484	97,192	97,192	0	587	0	587
2091	266,512	78,479	78,479	0	442	0	442
2092	204,446	62,488	62,488	0	328	0	328
2093	154,468	49,013	49,013	0	240	0	240
2094	114,843	37,832	37,832	0	173	0	173
2095	83,942	28,707	28,707	0	122	0	122
2096	60,263	21,391	21,391	0	85	0	85
2097	42,454	15,637	15,637	0	58	0	58
2098	29,321	11,201	11,201	0	39	0	39
2099	19,834	7,855	7,855	0	25	0	25
2100	13,130	5,386	5,386	0	16	0	16
2101	8,499	3,608	3,608	0	10	0	10
2102	5,375	2,359	2,359	0	6	0	6
2103	3,320	1,504	1,504	0	4	0	4
2104	2,001	935	935	0	2	0	2
2105	1,177	566	566	0	1	0	1
2106	675	334	334	0	1	0	1
2107	378	192	192	0	0	0	0
2108	206	108	108	0	0	0	0
2109	110	59	59	0	0	0	0
2110	57	31	31	0	0	0	0
2111	28	16	16	0	0	0	0
2112	14	8	8	0	0	0	0
2113	6	4	4	0	0	0	0
2114	3	2	2	0	0	0	0
2115	1	1	1	0	0	0	0
2116	1	0	0	0	0	0	0

## 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 our “TSERS Asset-Liability and Investment Strategy Project” report dated April 19<sup>th</sup>, 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 3.06% at December 31, 2016 and has been used as the lower bound of the sensitivity analysis presented. The range between the current discount rate (7.20%) and the 30-year treasury rate (3.06%) was used to establish an upper bound for sensitivity analysis (11.34%). 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 3.06% falls below the 5<sup>th</sup> percentile of estimated future 30-year returns while the upper bound of 11.34% 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, 2016**

Discount Rate	3.06%	5.13%	7.20%	9.27%	11.34%
Market Value of Assets	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567	\$ 23,308,817,567
Actuarial Accrued Liability	\$ 43,009,246,781	\$ 32,675,462,355	\$ 25,653,605,988	\$ 21,023,521,669	\$ 17,627,948,029
Unfunded Accrued Liability (UAL)	\$ 19,700,429,214	\$ 9,366,644,788	\$ 2,344,788,421	\$ (2,285,295,898)	\$ (5,680,869,538)
Funded Ratio	54.2%	71.3%	90.9%	110.9%	132.2%
20-Year Amortization of UAL (as % of general local revenue)	\$ 1,372,277,766 8.3%	\$ 798,890,806 4.8%	\$ 240,965,984 1.5%	N/A N/A	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
1996	10.20%	9.36%	2003	8.52%	18.63%	2010	6.10%	11.53%
1997	10.19%	18.10%	2004	9.00%	10.77%	2011	5.33%	2.14%
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%

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
2012	122,270	\$ 5,123,480,980
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

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

	Retired and Survivors of Deceased Member Count	Retirement Allowance
2012	54,547	\$ 972,478,821
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

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

	Market Value of Assets	Asset Return
2012	\$ 19,723,637,805	11.79%
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%

## Appendix G: Data for Section 2 Graphs

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

	Total Allowance Increase*	National CPI-U
1986	4.0%	1.1%
1987	4.8%	4.4%
1988	5.4%	4.4%
1989	6.7%	4.6%
1990	0.0%	6.1%
1991	5.2%	3.1%
1992	1.6%	2.9%
1993	3.4%	2.7%
1994	3.3%	2.7%
1995	4.4%	2.5%
1996	6.3%	3.3%
1997	3.1%	1.7%
1998	1.0%	1.6%
1999	4.4%	2.7%
2000	3.7%	3.4%
2001	2.0%	1.6%
2002	3.5%	2.4%
2003	0.0%	1.9%
2004	2.5%	3.3%
2005	2.8%	3.4%
2006	2.2%	2.5%
2007	2.2%	4.1%
2008	0.1%	0.1%
2009	0.0%	2.7%
2010	0.0%	1.5%
2011	0.0%	3.0%
2012	0.0%	1.7%
2013	0.0%	1.5%
2014	0.625%	0.8%
2015	0.105%	0.7%
2016	0.000%	2.1%

\* 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
2012	\$ 20,295,238,845	\$ 19,723,637,805
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

**Graph 7: Asset Returns**

	Actuarial Value Asset Return	Market Value Asset Return
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%

**Graph 8: Actuarial Accrued Liability**

	Liability for Active Members	Liability for Deferred Members	Liability for Retired Members	Total Liability
2012	\$ 10,066,485,418	\$ 1,112,093,532	\$ 9,160,205,841	\$ 20,338,784,791
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

## 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
2012	\$ 26,141,234,157	\$ 20,338,784,791	\$ 20,295,238,845
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

**Graph 10: Funded Ratios**

	Funded Ratio (Actuarial Basis)	Funded Ratio (Market Value Basis)
2012	99.8%	97.0%
2013	99.8%	101.1%
2014	99.8%	100.1%
2015	97.1%	92.0%
2016	95.2%	90.9%

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

Fiscal Year Ending	General Employees and Firefighters	Law Enforcement Officers
2015	6.95%	7.43%
2016	6.67%	7.15%
2017**	5.50%	7.12%
2018	6.25%	7.84%
2019*	7.40%	8.99%

\* 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**

	Alternate #1 (0.0% 2017 Return)	Baseline Projection	Alternate #2 (14.4% 2017 Return)
2017	5.50%	5.50%	5.50%
2018	6.25%	6.25%	6.25%
2019	7.40%	7.40%	7.40%
2020	8.76%	8.02%	7.29%
2021	10.39%	8.75%	7.11%
2022	11.96%	9.46%	6.96%
2023	12.88%	9.49%	6.11%
2024	13.76%	9.48%	5.19%
2025	13.74%	9.40%	5.07%
2026	13.45%	9.26%	5.06%
2027	13.17%	9.11%	5.05%
2028	12.88%	8.96%	5.04%
2029	12.60%	8.81%	5.03%
2030	11.15%	7.50%	3.86%
2031	10.12%	6.60%	3.09%
2032	8.92%	6.06%	3.22%
2033	7.53%	5.46%	3.40%
2034	6.20%	4.87%	3.55%

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

Fiscal Year Ending	Alternate #1 (0.0% 2017 Return)	Baseline Projection	Alternate #2 (14.4% 2017 Return)
2016	95.2%	95.2%	95.2%
2017	93.0%	94.2%	95.4%
2018	90.4%	93.3%	96.1%
2019	88.1%	92.4%	96.7%
2020	87.1%	92.8%	98.5%
2021	86.4%	93.4%	100.4%
2022	87.2%	94.1%	101.0%
2023	88.7%	95.0%	101.3%
2024	90.2%	95.8%	101.4%
2025	91.8%	96.6%	101.5%
2026	93.3%	97.4%	101.6%
2027	94.8%	98.2%	101.7%
2028	96.2%	99.0%	101.8%
2029	97.6%	99.7%	101.8%
2030	98.7%	100.1%	101.6%
2031	99.6%	100.4%	101.2%

## 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, 2018 by all participating employers.

Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
	70505	Eastern Band Of Cherokee Indians		8.64%		0.14%		
	72265	Piedmont Triad Airport Authority		8.64%		0.14%		
	72593	Town Of Seagrove		8.64%		0.14%		
	72657	Sparta, Town Of		8.64%		0.14%		
90001	73190	Yancey County	7.85%	8.64%	0.10%	0.14%		
90002		Yancey Soil & Water Conservation District	7.75%					
90011	70330	Burnsville, Town Of	7.82%	8.64%	0.07%	0.14%		
90092		Martin-Tyrell-Washington D.H.D	7.81%		0.06%			
90096		Pas.-Per.-Camden-Chowan D.H.D.	7.83%		0.08%			
90098		Toe River District Health Department	7.81%		0.06%			
90099		Appalachian District Health Department	7.78%		0.03%			
90101	70020	Alamance County	7.81%	8.64%	0.06%	0.14%		
90111	70320	Burlington, City Of	7.83%	8.64%	0.08%	0.14%		
90114		Mebane, Town Of	18.25%	19.14%		0.14%	5,083,090	6/30/2026
90117		Burlington-Graham A.B.C. Board	7.98%		0.23%			
90121	71080	Graham, City Of	7.75%	8.64%		0.14%		
90131	70880	Elon College, Town Of	7.79%	8.64%	0.04%	0.14%		
90141	71245	Haw River, Town Of	7.75%	8.64%		0.14%		
90151		Alamance, Village Of	7.75%					
90161		Green Level, Town Of	7.75%					
90201	70032	Alexander County	7.83%	8.64%	0.08%	0.14%		
90203		Alexander County Health Department	7.81%		0.06%			
90205		Alexander County Library	7.84%		0.09%			
90206		Alexander County Welfare Department	7.80%		0.05%			
90211	72775	Taylorsville, Town Of	7.75%	8.64%		0.14%		
90301	70035	Alleghany County	7.82%	8.64%	0.07%	0.14%		
90305		Northwestern Regional Library	7.86%		0.11%			
90307		Sparta A.B.C. Board	8.28%				2,784	12/31/2028
90401	70040	Anson County	7.85%	8.64%	0.10%	0.14%		
90411	72930	Wadesboro, Town Of	7.82%	8.64%	0.07%	0.14%		

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Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
90413		Wadesboro Housing Authority	7.83%		0.08%			
90417		Wadesboro A.B.C. Board	7.87%		0.12%			
90421	71584	Lilesville, Town Of	7.79%	8.64%	0.04%	0.14%		
90431	72345	Polkton, Town Of	7.90%	8.64%	0.15%	0.14%		
90441		Peachland, Town Of	7.75%					
90451		Ansonville, Town Of	7.75%					
90461		Morven, Town Of	12.23%				4,009	6/30/2019
90501	70065	Ashe County	7.82%	8.64%	0.07%	0.14%		
90507		West Jefferson Abc Board	10.97%				29,408	6/30/2028
90511	71447	Jefferson, Town Of	7.75%	8.64%		0.14%		
90521	73025	West Jefferson, Town Of	7.75%	8.64%		0.14%		
90601	70090	Avery County	7.89%	8.64%	0.14%	0.14%		
90602		Avery County Fire Commission	14.00%				239,705	12/31/2038
90605		Avery-Mitchell-Yancey Dist. Library	7.89%		0.14%			
90611	70110	Banner Elk, Town Of	7.75%	8.64%		0.14%		
90617		High Country Municipal A.B.C. Board	7.87%		0.12%			
90621	72032	Newland, Town Of	7.75%	8.64%		0.14%		
90631	70146	Beech Mountain, Town Of	7.75%	8.64%		0.14%		
90641	70860	Elk Park, Town Of	7.75%					
90651	72724	Sugar Mountain, Town Of	14.89%	15.78%		0.14%	312,438	6/30/2025
90701	70130	Beaufort County	7.80%	8.64%	0.05%	0.14%		
90704		Beaufort County A.B.C. Board	7.99%		0.24%			
90705		B.H.M. Regional Library	7.83%		0.08%			
90709		Mideast Economic Development Comm	7.80%		0.05%			
90711	72990	Washington, City Of	7.82%	8.64%	0.07%	0.14%		
90721	70085	Aurora, Town Of	7.88%	8.64%	0.13%	0.14%		
90731	70147	Belhaven, Town Of	7.75%	8.64%		0.14%		
90741		Washington Park, Town Of	7.75%					
90751	70525	Chocowinity, Town Of	7.75%	8.64%		0.14%		
90801	70180	Bertie County	7.75%	8.64%		0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
90804		Bertie County A.B.C. Board	7.86%		0.11%			
90805		Albemarle Regional Library	7.96%		0.21%			
90808		Bertie-Martin Regional Jail Comm	7.87%		0.12%			
90811	70082	Aulander, Town Of	7.78%		0.03%			
90812	73122	Windsor, Town Of	7.75%	8.64%		0.14%		
90813	70575	Colerain, Town Of	7.92%		0.17%			
90861	71556	Lewiston-Woodville, Town Of	8.79%				3,013	6/30/2024
90901	70210	Bladen County	7.82%	8.64%	0.07%	0.14%		
90911	70850	Elizabethtown, Town Of	7.85%	8.64%	0.10%	0.14%		
90917		Elizabethtown A.B.C. Board	7.75%					
90918		Southeastern Economic Develop. Com	7.77%		0.02%			
90921	73050	White Lake, Town Of	7.86%	8.64%	0.11%	0.14%		
90931	70537	Clarkton, Town Of	7.80%		0.05%			
90941	70215	Bladenboro, Town Of	7.75%	8.64%		0.14%		
91001	70280	Brunswick County	7.81%	8.64%	0.06%	0.14%		
91002	71540	Leland, Town Of	7.75%	8.64%		0.14%		
91003		Brunswick County Health Department	7.80%		0.05%			
91004		Brunswick County A.B.C. Board	7.75%					
91006		Brunswick County Welfare Department	7.79%		0.04%			
91007		Calabash A.B.C. Board	7.75%				2,079	6/30/2017
91008		Cape Fear Council Of Governments	7.75%					
91009		Brunswick County Tourism Develop. Authority	8.76%				8,970	6/30/2024
91010		Calabash, Town Of	7.75%					
91011	72650	Southport, City Of	7.84%	8.64%	0.09%	0.14%		
91012	72076	Northwest, City Of	7.75%	8.64%		0.14%		
91013		Southeast Brunswick Sanitary District	13.92%		0.36%		199,715	9/30/2039
91014	71375	Holden Beach, Town Of	7.75%	8.64%		0.14%		
91017		Southport A.B.C. Board	8.23%		0.48%			
91020		Belville, Town Of	8.39%				8,846	6/30/2031
91021	71630	Oak Island, Town Of	7.83%	8.64%	0.08%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
91024		Carolina Shores, Town Of	7.75%					
91026		Town Of Navassa	15.02%	15.91%		0.14%	256,805	6/30/2035
91027		Oak Island A.B.C. Board	7.89%		0.14%			
91032		St. James, Town Of	7.75%					
91041	72723	Sunset Beach, Town Of	7.80%	8.64%	0.05%	0.14%		
91042		North Brunswick Sanitary District	7.75%					
91047		Sunset Beach A.B.C. Board	20.20%		0.31%		23,790	6/30/2019
91051	70405	Caswell Beach, Town Of	7.75%	8.64%		0.14%		
91057		Shallotte A.B.C. Board	8.09%		0.34%			
91061	72135	Ocean Isle Beach, Town Of	7.82%	8.64%	0.07%	0.14%		
91067		Ocean Isle A.B.C. Board	8.03%		0.28%			
91071	70225	Boiling Spring Lakes, City Of	7.83%	8.64%	0.08%	0.14%		
91077		Boiling Spring Lakes A.B.C. Board	7.75%					
91081	72597	Shallotte, Town Of	7.75%	8.64%		0.14%		
91091	70107	Bald Head Island, Village Of	7.80%	8.64%	0.05%	0.14%		
91101	70290	Buncombe County	7.79%	8.64%	0.04%	0.14%		
91102		Land-Of-Sky Regional Council	7.81%		0.06%			
91104		Woodfin Abc Commission	9.26%				11,719	9/30/2033
91107		Western Nc Regional Air Pollution Control	7.78%		0.03%			
91108		Metro Sewerage Dist Of Buncombe County	7.83%		0.08%			
91109		Woodfin Sanitary Water & Sewer District	7.82%		0.07%			
91111	70190	Biltmore Forest, Town Of	7.75%	8.64%		0.14%		
91120		West Buncombe Fire Department	7.75%					
91121	70070	Asheville, City Of	7.75%	8.64%		0.14%		
91127	70072	Asheville A.B.C. Board	7.85%	8.64%	0.10%	0.14%		
91128	70074	Asheville Regional Airport Authority	7.82%	8.64%	0.07%	0.14%		
91138		Skyland Volunteer Fire Department	7.75%					
91141	73016	Weaverville, Town Of	7.75%	8.64%		0.14%		
91147		Weaverville A.B.C. Board	8.68%				15,878	6/30/2032
91151	70200	Black Mountain, Town Of	7.80%	8.64%	0.05%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
91154		Black Mountain A.B.C. Board	7.83%		0.08%			
91161	71820	Montreat, Town Of	7.86%	8.64%	0.11%	0.14%		
91171	73160	Woodfin, Town Of	7.75%	8.64%		0.14%		
91201	70310	Burke County	7.82%	8.64%	0.07%	0.14%		
91202		Burke-Catawba Dist. Confinement Fa	8.43%				18,469	6/30/2019
91203		Burke County Health Department	7.82%		0.07%			
91206		Burke County Welfare Department	7.80%		0.05%			
91208		Burke County Tourism Development Authority	7.75%					
91211	72883	Valdese, Town Of	7.84%	8.64%	0.09%	0.14%		
91213		Valdese Housing Authority	7.75%					
91214		Rutherford College, Town Of	7.75%					
91217	71880	Morganton A.B.C. Board	8.03%		0.28%			
91221	70745	Drexel, Town Of	7.81%	8.64%	0.06%	0.14%		
91231	71870	Morganton, City Of	7.75%	8.64%		0.14%		
91233		Morganton Housing Authority	7.80%		0.05%			
91241	71065	Glen Alpine, Town Of	8.01%	8.64%	0.26%	0.14%		
91251		Hildebrand, Town Of	7.75%					
91261		Connelly Springs, Town Of	7.75%				1,839	6/30/2018
91301	70340	Cabarrus County	7.80%	8.64%	0.05%	0.14%		
91302		Water & Sewer Authority Of Cabarrus County	7.79%		0.04%			
91306		Cabarrus Co. Public Health Auth	7.79%		0.04%			
91308		Cabarrus Co. Tourism Auth	8.42%				60,562	6/30/2028
91311	70590	Concord, City Of	7.80%	8.64%	0.05%	0.14%		
91317		Concord A.B.C. Board	7.87%		0.12%			
91321		Mount Pleasant, Town Of	13.89%				70,446	6/30/2021
91327		Mt. Pleasant A.B.C. Board	7.95%		0.20%			
91331	71468	Kannapolis, Town Of	7.80%	8.64%	0.05%	0.14%		
91341		Midland, Town Of	7.75%					
91401	70350	Caldwell County	7.82%	8.64%	0.07%	0.14%		
91411	71090	Granite Falls, Town Of	7.82%	8.64%	0.07%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
91417		Granite Falls A.B.C. Board	7.92%		0.17%			
91421		Sawmills, Town Of	7.75%					
91423		Lenoir Housing Authority	7.80%		0.05%			
91431	71395	Hudson, Town Of	7.75%	8.64%		0.14%		
91441		Harrisburg, Town Of	7.75%					
91451	71552	Lenoir, City Of	7.75%	8.64%		0.14%		
91457		Lenoir A.B.C. Board	17.35%				91,936 3/31/2023	
91461		Cajah'S Mountian, Town Of	7.75%					
91501	70357	Camden County	7.84%	8.64%	0.09%	0.14%		
91504		Camden County A.B.C. Board	7.96%		0.21%			
91601	70380	Carteret County	7.84%	8.64%	0.09%	0.14%		
91604	70385	Carteret County A.B.C. Board	7.89%	8.64%	0.14%	0.14%		
91608		Western Carter Interlocal Agency	7.75%					
91611	71860	Morehead City, Town Of	7.81%	8.64%	0.06%	0.14%		
91621	72035	Newport, Town Of	7.75%	8.64%		0.14%		
91631	70145	Beaufort, Town Of	7.82%	8.64%	0.07%	0.14%		
91633		Beaufort Housing Authority	7.75%					
91641	72290	Pine Knoll Shores, Town Of	7.79%	8.64%	0.04%	0.14%		
91651	70890	Emerald Isle, Town Of	7.75%	8.64%		0.14%		
91661	71405	Indian Beach, Town Of	7.75%	8.64%		0.14%		
91671	70365	Cape Carteret, Town Of	7.80%	8.64%	0.05%	0.14%		
91681	70080	Atlantic Beach, Town Of	14.15%	14.87%	0.17%	0.14%	1,231,147 6/30/2025	
91691		Cedar Point, Town Of	7.75%					
91701	70415	Caswell County	7.83%	8.64%	0.08%	0.14%		
91704		Caswell County A.B.C. Board	7.91%		0.16%			
91706		Caswell County Welfare Department	7.84%		0.09%			
91719	73192	Yanceyville, Town Of	7.80%		0.05%			
91801	70430	Catawba County	7.80%	8.64%	0.05%	0.14%		
91804	70440	Catawba County A.B.C. Board	7.99%		0.24%			
91811	71330	Hickory, City Of	7.81%	8.64%	0.06%	0.14%		

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Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
91812		Hickory/Conover Tourism Dev. Authority	7.75%					
91813		Hickory Housing Authority	7.81%		0.06%			
91818		Western Piedmont Council Of Governments	7.75%				384,884	6/30/2018
91819		Western Piedmont Regional Transit Authority	8.06%		0.31%			
91821	70535	Claremont, Town Of	7.81%	8.64%	0.06%	0.14%		
91831	71700	Maiden, Town Of	7.84%	8.64%	0.09%	0.14%		
91841	71640	Long View, Town Of	7.84%	8.64%	0.09%	0.14%		
91851	70610	Conover, Town Of	7.84%	8.64%	0.09%	0.14%		
91861	70270	Brookford, Town Of	7.75%	8.64%		0.14%		
91871	72040	Newton, Town Of	7.82%	8.64%	0.07%	0.14%		
91881	70441	Catawba, Town Of	7.75%					
91901	70490	Chatham County	7.81%	8.64%	0.06%	0.14%		
91903		Chatham County Housing Authority	7.75%					
91904		Chatham County A.B.C. Board	7.75%				1,161	12/31/2017
91908		Goldston-Gulf Sanitary District	7.75%					
91911	72625	Siler City, Town Of	7.84%	8.64%	0.09%	0.14%		
91917		Siler City A.B.C. Board	7.87%		0.12%			
91921	72330	Pittsboro, Town Of	7.82%	8.64%	0.07%	0.14%		
92001	70500	Cherokee County	7.86%	8.64%	0.11%	0.14%		
92005		Nantahala Regional Library	7.89%		0.14%			
92011	71975	Murphy, Town Of	7.89%	8.64%	0.14%	0.14%		
92017		Murphy A.B.C. Board	7.80%		0.05%			
92021	70036	Andrews, Town Of	7.75%	8.64%		0.14%		
92101	70530	Chowan County	7.83%	8.64%	0.08%	0.14%		
92104		Chowan County A.B.C. Board	7.91%		0.16%			
92109		Albemarle Regional Plan. & Develop. Com	7.79%		0.04%			
92111	70817	Edenton, Town Of	7.85%	8.64%	0.10%	0.14%		
92113		The New Edenton Housing Authority	7.90%		0.15%			
92201	70538	Clay County	7.85%	8.64%	0.10%	0.14%		
92301	70550	Cleveland County	7.81%	8.64%	0.06%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
92302		Cleveland County Sanitary District	7.75%					
92311	72610	Shelby, City Of	7.82%	8.64%	0.07%	0.14%		
92317		Shelby A.B.C. Board	7.90%		0.15%			
92321	71490	Kings Mountain, City Of	7.75%	8.64%		0.14%		
92327		Kings Mountain A.B.C. Board	7.92%		0.17%			
92331	70230	Boiling Springs, Town Of	7.94%	8.64%	0.19%	0.14%		
92341	71532	Lawndale, Town Of	7.75%					
92351	71178	Grover, Town Of	9.82%	10.61%	0.10%	0.14%	7,408	9/30/2020
92401	70580	Columbus County	7.85%	8.64%	0.10%	0.14%		
92403		Whiteville Housing Authority	7.75%					
92411	73060	Whiteville, City Of	7.82%	8.64%	0.07%	0.14%		
92417		Whiteville A.B.C. Board	7.77%		0.02%			
92421		Brunswick, Town Of	7.75%					
92427		Lake Waccamaw A.B.C. Board	8.50%		0.75%			
92431	70908	Fair Bluff, Town Of	7.75%	8.64%		0.14%	6,877	9/30/2017
92441	70450	Chadbourn, Town Of	7.75%	8.64%		0.14%		
92444		Chadburn A.B.C. Board	7.75%					
92451	72760	Tabor City, Town Of	7.75%	8.64%		0.14%		
92461	71519	Lake Woccamaw, Town Of	7.75%	8.64%		0.14%		
92501	70650	Craven County	7.82%	8.64%	0.07%	0.14%		
92502		First Craven Sanitary District	7.75%					
92504		Craven County A.B.C. Board	7.88%		0.13%			
92505		Craven-Pamlico-Carteret Regional Library	7.92%		0.17%			
92506		Craven County Airport Authority	7.97%		0.22%			
92507		Neuse River Council Of Governments	7.80%		0.05%			
92508		Coastal Regional Waste Management Authority	7.84%		0.09%			
92511	72020	New Bern, City Of	7.82%	8.64%	0.07%	0.14%		
92513		Trillium Health Resources	7.79%		0.04%			
92521	72810	Trent Woods, Town Of	7.82%	8.64%	0.07%	0.14%		
92531	71240	Havelock, City Of	7.81%	8.64%	0.06%	0.14%		

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Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
92541	72435	River Bend, Town Of	7.75%	8.64%		0.14%		
92551	72910	Vanceboro, Town Of	7.75%	8.64%		0.14%		
92561		Bridgeton, Town Of	7.75%	8.64%		0.14%		
92571		Cove City, Town Of	7.75%				4,488	6/30/2018
92601	70680	Cumberland County	7.81%	8.64%	0.06%	0.14%		
92602		Westarea Volunteer Fire Department	7.75%					
92604	70685	Cumberland County A.B.C. Board	7.85%	8.64%	0.10%	0.14%		
92607		Region M Council Of Governments	7.80%		0.05%			
92611	70940	Fayetteville, City Of	7.81%	8.64%	0.06%	0.14%		
92613		Fayetteville Metro. Housing Authority	7.82%		0.07%			
92614		Fayetteville Public Works Commission	12.98%				9,599,820	6/30/2022
92621	72715	Stedman, Town Of	7.75%	8.64%		0.14%		
92631	71390	Hope Mills, Town Of	7.81%	8.64%	0.06%	0.14%		
92641		Wade, Town Of	7.75%					
92651		Linden, Town Of	7.75%					
92661	72676	Spring Lake, Town Of	14.47%	15.26%	0.10%	0.14%	1,745,639	9/30/2024
92671		Falcon, Town Of	14.17%				19,105	6/30/2026
92681		Eastover, Town Of	8.06%		0.31%			
92701	70700	Currituck County	7.81%	8.64%	0.06%	0.14%		
92704		Currituck County A.B.C. Board	7.75%					
92801	70720	Dare County	7.82%	8.64%	0.07%	0.14%		
92802		Dare County Tourism Board	7.80%		0.05%			
92804	70721	Dare County A.B.C. Board	7.86%	8.64%	0.11%	0.14%		
92811	71980	Nags Head, Town Of	7.81%	8.64%	0.06%	0.14%		
92821	71480	Kill Devil Hills, Town Of	7.82%	8.64%	0.07%	0.14%		
92831	71705	Manteo, Town Of	7.97%	8.64%	0.22%	0.14%		
92841	72645	Southern Shores, Town Of	7.80%	8.64%	0.05%	0.14%		
92851	71507	Kitty Hawk, Town Of	7.93%	8.64%	0.18%	0.14%		
92861	70755	Duck, Town Of	7.75%	8.64%		0.14%		
92901	70723	Davidson County	7.82%	8.64%	0.07%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
92911	72780	Thomasville, City Of	7.84%	8.64%	0.09%	0.14%		
92913		Thomasville Housing Authority	24.18%				254,443	6/30/2024
92914		Thomasville A.B.C. Board	7.75%					
92917		Lexington A.B.C. Board	7.99%		0.24%			
92921	70730	Denton, Town Of	7.75%	8.64%		0.14%		
92931	71570	Lexington, City Of	7.82%	8.64%	0.07%	0.14%		
92941		Midway, Town Of	10.04%				30,078	6/30/2031
93001	70725	Davie County	7.81%	8.64%	0.06%	0.14%		
93009		Davie Soil & Water Conservation District	7.75%					
93011	71790	Mocksville, Town Of	7.82%	8.64%	0.07%	0.14%		
93021		Bermuda Run, Town Of	7.75%					
93027		Cooleemee A.B.C. Board	7.75%					
93031	70624	Cooleemee, Town Of	13.95%	14.84%		0.14%	84,109	9/30/2027
93101	70770	Duplin County	7.84%	8.64%	0.09%	0.14%		
93103		Duplin County Tourism Development Authority	7.75%					
93108		Duplin-Sampson Area Mental Health	7.80%		0.05%			
93111	70160	Beulaville, Town Of	7.80%	8.64%	0.05%	0.14%		
93121	71469	Kenansville, Town Of	7.82%	8.64%	0.07%	0.14%		
93127		Kenansville A.B.C. Board	7.75%					
93131	72981	Warsaw, Town Of	7.75%	8.64%		0.14%		
93137		Warsaw A.B.C. Board	7.75%					
93141	70920	Faison, Town Of	7.84%		0.09%			
93151	72970	Wallace, Town Of	7.75%	8.64%		0.14%		
93157		Wallace A.B.C. Board	7.75%					
93161	72487	Rose Hill, Town Of	7.85%	8.64%	0.10%	0.14%		
93171		Calypto, Town Of	7.75%					
93181		Teachey, Town Of	7.75%					
93191	71690	Magnolia, Town Of	7.75%	8.64%		0.14%		
93201	70790	Durham County	7.80%	8.64%	0.05%	0.14%		
93204	70800	Durham County A.B.C. Board	7.83%	8.64%	0.08%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93209		Alliance Behavioral Healthcare	7.75%					
93211	70780	Durham, City Of	7.75%	8.64%		0.14%		
93212		Durham Convention And Visitors Bureau	13.46%				748,678	9/30/2028
93219		Triangle J Council Of Governments	7.79%		0.04%			
93301	70820	Edgecombe County	7.83%	8.64%	0.08%	0.14%		
93304		Edgecombe County A.B.C. Board	7.93%		0.18%			
93305		Edgecombe-Nash Memorial Library	7.82%		0.07%			
93309		Region L Council Of Governments	7.83%		0.08%			
93311	72770	Tarboro, Town Of	7.82%	8.64%	0.07%	0.14%		
93317		Tarboro Redevelopment Commission	7.81%		0.06%			
93321	72480	Rocky Mount, City Of	7.81%	8.64%	0.06%	0.14%		
93323		Rocky Mount-Wilson Airport Authority	7.85%		0.10%			
93331	72296	Pinetops, Town Of	7.83%	8.64%	0.08%	0.14%		
93333		Rocky Mount Housing Authority	7.75%					
93341		Macclesfield, Town Of	7.80%		0.05%			
93351	72351	Princeville, Town Of	7.75%					
93401	70951	Forsyth County	7.75%	8.64%		0.14%		
93402		Airport Commission Of Forsyth County	7.75%					
93406		Piedmont Triad Regional Council	7.89%		0.14%			
93411	73130	Winston-Salem, City Of	7.75%	8.64%		0.14%		
93413		Winston-Salem Housing Authority	7.82%		0.07%			
93417	73140	Winston-Salem A.B.C. Board	7.89%	8.64%	0.14%	0.14%		
93421	71470	Kernersville, Town Of	7.75%	8.64%		0.14%		
93431		Rural Hall, Town Of	7.82%		0.07%			
93441		Clemmons, Village Of	7.75%					
93442		Clemmons Fire Department	7.75%					
93451		Lewisville, Town Of	7.75%					
93461		Walkertown, Town Of	8.94%				3,216	12/31/2019
93471		Tobaccoville, Village Of	7.75%					
93501	70960	Franklin County	7.84%	8.64%	0.09%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93511	70970	Franklinton, Town Of	7.75%	8.64%		0.14%		
93517		Franklinton A.B.C. Board	7.97%		0.22%			
93521	71650	Louisburg, Town Of	7.83%	8.64%	0.08%	0.14%		
93527		Louisburg A.B.C. Board	7.93%		0.18%			
93531	70295	Bunn, Town Of	7.75%	8.64%		0.14%		
93537		Bunn A.B.C. Board	7.75%					
93541	73200	Youngsville, Town Of	7.75%	8.64%		0.14%		
93601	71030	Gaston County	7.80%	8.64%	0.05%	0.14%		
93602	72682	Stanley, Town Of	7.82%	8.64%	0.07%	0.14%		
93609		Gaston-Lincoln Area Mental Health	7.80%		0.05%			
93610	71760	Mcadenville, Town Of	7.79%		0.04%			
93611	71040	Gastonia, City Of	7.75%	8.64%		0.14%		
93617		Gastonia A.B.C. Board	8.15%		0.40%			
93618		Gaston Co. Economic Dev. Commission	17.82%				67,606	6/30/2022
93621	70150	Belmont, City Of	7.75%	8.64%		0.14%		
93623		Belmont Housing Authority	7.75%				3,565	3/31/2018
93631	70640	Cramerton, Town Of	7.95%	8.64%	0.20%	0.14%		
93641	70520	Cherryville, City Of	7.85%	8.64%	0.10%	0.14%		
93647		Cherryville A.B.C. Board	20.96%				32,683	12/31/2023
93651	70705	Dallas, Town Of	7.75%	8.64%		0.14%		
93661	71655	Lowell, Town Of	7.75%	8.64%		0.14%		
93671		Bessemer City, City Of	7.93%	8.64%	0.18%	0.14%		
93681	72390	Ranlo, Town Of	7.75%	8.64%		0.14%		
93691	71930	Mt. Holly, City Of	7.81%	8.64%	0.06%	0.14%		
93701	71050	Gates County	7.82%	8.64%	0.07%	0.14%		
93704	71052	Gates County A.B.C. Board	7.94%		0.19%			
93801	71085	Graham County	7.75%	8.64%		0.14%		
93803		Graham County Health Department	7.79%		0.04%			
93806		Graham County Welfare Department	7.81%		0.06%			
93821		Robbinsville, Town Of	7.83%		0.08%		5,948	6/30/2017

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
93901	71110	Granville County	7.82%	8.64%	0.07%	0.14%		
93904		Granville County A.B.C. Board	7.94%		0.19%			
93906		Granville County Hospital	7.79%		0.04%			
93908		Granville-Vance Health District	7.80%		0.05%			
93910		South Granville Water And Sewer Authority	7.91%		0.16%			
93911	72200	Oxford, City Of	7.83%	8.64%	0.08%	0.14%		
93913		Oxford Housing Authority	7.81%		0.06%			
93914		Stovall, Town Of	8.39%		0.64%			
93921	70660	Creedmoor, City Of	7.75%	8.64%		0.14%		
93931		Butner, Town Of	7.89%	8.64%	0.14%	0.14%		
94001	71130	Greene County	7.86%	8.64%	0.11%	0.14%		
94002		Maury Sanitary Land District	8.64%				1,550	3/31/2020
94004		Greene County A.B.C. Board	7.89%		0.14%			
94011		Hookerton, Town Of	7.77%		0.02%			
94021		Snow Hill, Town Of	7.75%	8.64%		0.14%		
94031		Walstonburg, Town Of	15.03%				45,132	9/30/2033
94101	71180	Guilford, County Of	7.80%	8.64%	0.05%	0.14%		
94102		Guil-Rand Fire Department	7.75%					
94108		Pinecroft-Sedgefield Fire District	7.75%					
94109		Alamance Community Fire Dist.,Inc	7.75%					
94111	71140	Greensboro, City Of	7.81%	8.64%	0.06%	0.14%		
94112		Piedmont Triad Regional Water Authority	7.83%	8.64%	0.08%	0.14%		
94117	71150	Greensboro A.B.C. Board	7.84%		0.09%			
94118		Guilford Fire District	7.75%					
94121	71340	High Point, City Of	7.81%	8.64%	0.06%	0.14%		
94127		High Point A.B.C. Board	7.85%		0.10%			
94131	71442	Jamestown, Town Of	7.82%		0.07%			
94151	71060	Gibsonville, Town Of	7.82%	8.64%	0.07%	0.14%		
94157		Gibsonville A.B.C. Board	7.75%					
94161		Oak Ridge, Town Of	7.75%					

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

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Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
94168		Colfax Volunteer Fire Department	7.75%					
94171		Summerfield, Town Of	7.75%					
94172		Summerfield Fire District	7.79%		0.04%			
94201	71200	Halifax County	7.81%	8.64%	0.06%	0.14%		
94204		Halifax County A.B.C. Board	7.88%		0.13%			
94205		Halifax County Tourism Development Authority	7.84%		0.09%			
94209		Roanoke Rapids Sanitary District	7.82%		0.07%			
94211	70895	Enfield, Town Of	7.97%	8.64%	0.22%	0.14%		
94221	72440	Roanoke Rapids, City Of	7.82%	8.64%	0.07%	0.14%		
94231	73017	Weldon, Town Of	7.87%	8.64%	0.12%	0.14%		
94241	72590	Scotland Neck, Town Of	7.87%	8.64%	0.12%	0.14%		
94251		Hobgood, Town Of	7.82%		0.07%			
94261	71615	Littleton, Town Of	7.75%	8.64%		0.14%		
94301	71230	Harnett County	7.81%	8.64%	0.06%	0.14%		
94311	70760	Dunn, Town Of	7.83%	8.64%	0.08%	0.14%		
94313		Dunn Housing Authority	7.96%		0.21%			
94317		Dunn A.B.C. Board	7.79%		0.04%			
94321	71585	Lillington, Town Of	7.80%	8.64%	0.05%	0.14%		
94331	70900	Erwin, Town Of	7.84%	8.64%	0.09%	0.14%		
94341	70570	Coats, Town Of	7.83%	8.64%	0.08%	0.14%		
94347		Angier A.B.C. Board	7.90%		0.15%			
94351	70038	Angier, Town Of	7.75%	8.64%		0.14%		
94401	71250	Haywood County	7.82%	8.64%	0.07%	0.14%		
94403		Haywood County Tourism	7.75%					
94408		Junaluska Sanitary District	7.81%		0.06%			
94411	73010	Waynesville, Town Of	7.83%	8.64%	0.08%	0.14%		
94412	73015	Waynesville A.B.C. Board	7.95%		0.20%			
94421	71685	Maggie Valley, Town Of	7.75%	8.64%		0.14%		
94427		Maggie Valley A.B.C. Board	7.75%					
94428		Maggie Valley Sanitary District	7.75%					

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
94431	70362	Canton, Town Of	12.54%	13.37%	0.06%	0.14%	357,318	6/30/2020
94437		Canton A.B.C. Board	12.63%				45,942	12/31/2027
94501	71275	Henderson County	7.81%	8.64%	0.06%	0.14%		
94511	71280	Hendersonville, City Of	7.81%	8.64%	0.06%	0.14%		
94517		Hendersonville A.B.C. Board	7.75%					
94521	71525	Laurel Park, Town Of	7.87%	8.64%	0.12%	0.14%		
94527		Laurel Park A.B.C. Board	7.83%		0.08%			
94531		Flat Rock, Village Of	7.75%					
94532		Blue Ridge Fire Department	7.83%		0.08%			
94541	70943	Fletcher, Town Of	7.75%	8.64%		0.14%		
94547		Fletcher A.B.C. Board	7.75%					
94551		Mills River, Town Of	8.06%		0.31%		1,007	6/30/2017
94601	71310	Hertford County	7.84%	8.64%	0.09%	0.14%		
94604	71320	Hertford County A.B.C. Board	7.87%		0.12%			
94606		Hertford County Public Health Authority	7.85%		0.10%			
94611	70007	Ahoskie, Town Of	7.88%	8.64%	0.13%	0.14%		
94621	71970	Murfreesboro, Town Of	7.75%	8.64%		0.14%		
94631	73155	Winton, Town Of	8.00%		0.25%			
94641		Cofield, Town Of	7.75%					
94701	71370	Hoke County	7.83%	8.64%	0.08%	0.14%		
94704		Hoke County A.B.C. Board	7.93%		0.18%			
94711	72355	Raeford, Town Of	7.85%	8.64%	0.10%	0.14%		
94801	71400	Hyde County	7.84%	8.64%	0.09%	0.14%		
94804		Hyde County A.B.C. Board	7.75%					
94812		Ocracoke Sanitary District	7.87%		0.12%			
94901	71420	Iredell County	7.81%	8.64%	0.06%	0.14%		
94908		Greater Statesville Development Co	7.75%					
94911	72700	Statesville, City Of	7.82%	8.64%	0.07%	0.14%		
94917	72710	Statesville A.B.C. Board	7.93%		0.18%			
94921	71850	Mooresville, City Of	7.80%	8.64%	0.05%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
94923		Mooresville Housing Authority	7.81%		0.06%			
94927		Mooresville A.B.C. Board	7.84%		0.09%			
94931	72815	Troutman, Town Of	7.89%	8.64%	0.14%	0.14%		
94941		Mi Connection Communications System	7.75%					
95001	71430	Jackson County	7.83%	8.64%	0.08%	0.14%		
95002		Tuckasegee Water And Sewer Auth	7.83%		0.08%			
95005		Fontana Regional Library	7.86%		0.11%			
95008		Southwestern Plan. & Econ. Dev. Co	7.82%		0.07%			
95009		Smoky Mountain Mental Health Center	7.80%		0.05%			
95011	72750	Sylva, Town Of	7.83%	8.64%	0.08%	0.14%		
95017		Sylva A.B.C. Board	7.87%		0.12%			
95101	71460	Johnston County	7.80%	8.64%	0.05%	0.14%		
95103		Benson Housing Authority	11.68%				142,993	12/31/2036
95104		Johnston County A.B.C. Board	7.92%		0.17%			
95105		Johnston County Public Library	7.82%		0.07%			
95106		Archer Lodge, Town Of	8.28%				3,715	6/30/2030
95110		Johnston County Memorial Hospital Authority	7.85%		0.10%			
95111	72630	Smithfield, Town Of	7.83%	8.64%	0.08%	0.14%		
95113		Smithfield Housing Authority	18.43%				222,439	6/30/2023
95121	72594	Selma, Town Of	7.83%	8.64%	0.08%	0.14%		
95122		Micro, Town Of		11.11%		0.14%	9,246	3/31/2036
95123		Selma Housing Authority	7.82%		0.07%			
95131	70540	Clayton, Town Of	7.81%	8.64%	0.06%	0.14%		
95141	70170	Benson, Town Of	7.80%	8.64%	0.05%	0.14%		
95151	70954	Four Oaks, Town Of	7.75%	8.64%		0.14%		
95161	72295	Pine Level, Town Of	7.75%	8.64%		0.14%		
95171	71472	Kenly, Town Of	7.75%	8.64%		0.14%		
95181	72349	Princeton, Town Of	7.75%	8.64%		0.14%		
95191		Wilson'S Mills, Town Of	10.57%	11.46%		0.14%	45,712	6/30/2023
95201	71465	Jones County	7.81%	8.64%	0.06%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
95204		Jones County A.B.C. Board	7.93%		0.18%			
95205		Neuse Regional Library - Jones County	7.98%		0.23%			
95211		Pollocksville, Town Of	8.01%		0.26%			
95221	71745	Maysville, Town Of	7.75%	8.64%		0.14%		
95301	71535	Lee County	7.82%	8.64%	0.07%	0.14%		
95311	72565	Sanford, City Of	7.75%	8.64%		0.14%		
95317		Sanford A.B.C. Board	7.97%		0.22%			
95321	70265	Broadway, Town Of	7.86%	8.64%	0.11%	0.14%		
95401	71550	Lenoir County	7.82%	8.64%	0.07%	0.14%		
95404		Lenoir County A.B.C. Board	7.83%	8.64%	0.08%	0.14%		
95405		Neuse Regional Library	7.89%		0.14%			
95411	71500	Kinston, City Of	7.85%	8.64%	0.10%	0.14%		
95413		Kinston Housing Authority	7.82%		0.07%		75,568	6/30/2017
95415		Kinston-Lenoir County Library	7.85%		0.10%			
95421	72305	Pink Hill, Town Of	7.80%	8.64%	0.05%	0.14%		
95431	71517	Lagrange, Town Of	7.79%		0.04%			
95501	71590	Lincoln County	7.83%	8.64%	0.08%	0.14%		
95504		Lincoln County A.B.C. Board	8.89%				11,347	12/31/2028
95511	71600	Lincolnton, City Of	7.83%	8.64%	0.08%	0.14%		
95513		Lincolnton Housing Authority	7.85%		0.10%			
95517		Lincolnton A.B.C. Board	7.99%		0.24%			
95601	71680	Macon County	7.83%	8.64%	0.08%	0.14%		
95611	70955	Franklin, Town Of	7.82%	8.64%	0.07%	0.14%		
95617		Highlands A.B.C. Board	7.98%		0.23%			
95621	71335	Highlands, Town Of	7.75%	8.64%		0.14%		
95701	71684	Madison County	7.84%	8.64%	0.09%	0.14%		
95711	71718	Mars Hill, Town Of	7.82%	8.64%	0.07%	0.14%		
95721	71711	Marshall, Town Of	7.84%	8.64%	0.09%	0.14%		
95733		Hot Springs Housing Authority	7.75%					
95801	71730	Martin County	7.84%	8.64%	0.09%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
95802		Martin County Travel & Tourism Authority	8.24%		0.49%			
95804		Martin County A B C Board	7.79%		0.04%			
95811	73080	Williamston, City Of	7.75%	8.64%		0.14%		
95813		Williamston Housing Authority	19.41%		0.09%		83,913	3/31/2019
95831		Hamilton, Town Of	7.93%		0.18%		10,809	6/30/2018
95841		Jamesville, Town Of	7.75%					
95851	72445	Robersonville, Town Of	17.38%	18.27%		0.14%	211,943	12/31/2019
95853		Robersonville Housing Authority	7.75%					
95901	71762	Mc Dowell County	7.83%	8.64%	0.08%	0.14%		
95908		Pleasant Garden Fire Department	7.75%					
95911	71710	Marion, Town Of	7.84%	8.64%	0.09%	0.14%		
95917		Marion A.B.C. Board	7.75%					
95921	72140	Old Fort, Town Of	7.75%	8.64%		0.14%		
96001	71770	Mecklenburg County	7.80%	8.64%	0.05%	0.14%		
96003		Charlott Housing Authority	7.75%					
96004	71780	Mecklenburg County A.B.C. Board	7.85%	8.64%	0.10%	0.14%		
96005		Charlotte-Mecklenburg Public Libra	7.80%		0.05%			
96008		Mecklenburg County Ems Agency	7.78%		0.03%			
96009		Centralina Council Of Governments	7.75%					
96011	70480	Charlotte, City Of	7.75%	8.64%		0.14%		
96012		Charlotte Auditorium-Coliseum	7.75%					
96018		Charlotte Fire Ret Sys Board Of Trust	7.75%					
96021	72300	Pineville, Town Of	7.80%	8.64%	0.05%	0.14%		
96031	71775	Mint Hill, Town Of	7.80%	8.64%	0.05%	0.14%		
96041	71397	Huntersville, Town Of	7.75%	8.64%		0.14%		
96051	70625	Cornelius, Town Of	7.75%	8.64%		0.14%		
96061	72679	Stallings, Town Of	7.86%	8.64%	0.11%	0.14%		
96071	71740	Matthews, Town Of	7.82%	8.64%	0.07%	0.14%		
96081	70724	Davidson, Town Of	7.84%	8.64%	0.09%	0.14%		
96101	71788	Mitchell County	7.86%	8.64%	0.11%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
96102		Mitchell Soil & Water Conserv. District	7.75%					
96111	72678	Spruce Pine, Town Of	7.91%	8.64%	0.16%	0.14%		
96121	70105	Bakersville, Town Of	7.75%	8.64%		0.14%		
96201	71815	Montgomery County	7.83%	8.64%	0.08%	0.14%		
96204		Montgomery-Municipal A.B.C. Board	7.87%		0.12%			
96211	72685	Star, Town Of	7.75%	8.64%		0.14%		
96221	72822	Troy, Town Of	7.75%	8.64%		0.14%		
96231	70192	Biscoe, Town Of	7.75%	8.64%		0.14%		
96241	70360	Candor, Town Of	7.75%	8.64%		0.14%		
96251	71920	Mount Gilead, Town Of	7.81%	8.64%	0.06%	0.14%		
96301	71830	Moore County	7.81%	8.64%	0.06%	0.14%		
96302	72776	Taylortown, Town Of	7.75%	8.64%		0.14%		
96304	71840	Moore County A.B.C. Board	7.95%		0.20%			
96305		Moore County Tourism Develop. Auth.	7.75%					
96310		Moore County Airport Authority	7.86%		0.11%			
96311	72640	Southern Pines, Town Of	7.81%	8.64%	0.06%	0.14%		
96312	70358	Cameron, Town Of	7.75%	8.64%		0.14%		
96318		Sandhills Center	7.75%					
96321	72920	Vass, Town Of	7.92%	8.64%	0.17%	0.14%		
96331	70005	Aberdeen, Town Of	7.86%	8.64%	0.11%	0.14%		
96341	72443	Robbins, Town Of	7.75%	8.64%		0.14%		
96351	72287	Pinehurst, Village Of	7.82%	8.64%	0.07%	0.14%		
96361	72285	Pinebluff, Town Of	7.95%	8.64%	0.20%	0.14%		
96371	73040	Whispering Pines, Village Of	7.81%	8.64%	0.06%	0.14%		
96381	70953	Foxfire Village	7.82%	8.64%	0.07%	0.14%		
96391	70390	Carthage, Town Of	7.75%	8.64%		0.14%		
96401	71990	Nash County	7.81%	8.64%	0.06%	0.14%		
96404	72000	Nash County A.B.C. Board	7.87%	8.64%	0.12%	0.14%		
96405		Braswell Memorial Library	8.95%				39,832	6/30/2020
96411	72675	Spring Hope, Town Of	7.75%	8.64%		0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
96421	71995	Nashville, Town Of	7.83%	8.64%	0.08%	0.14%		
96431	71785	Middlesex, Town Of	7.90%	8.64%	0.15%	0.14%		
96441	73045	Whitakers, Town Of	7.75%	8.64%		0.14%		
96451	70104	Bailey, Town Of	7.75%	8.64%		0.14%		
96461	72600	Sharpsburg, Town Of	7.75%	8.64%		0.14%		
96501	72030	New Hanover County	7.81%	8.64%	0.06%	0.14%		
96502	72024	New Hanover Airport Authority	7.80%	8.64%	0.05%	0.14%		
96503		Wilmington Housing Authority	14.10%				836,372	6/30/2024
96504		New Hanover County A.B.C. Board	7.75%					
96507		Cape Fear Public Utility Authority	7.75%					
96508		Lower Cape Fear Water & Sewer Auth	8.31%		0.56%			
96511	73165	Wrightsville Beach, Town Of	7.82%	8.64%	0.07%	0.14%		
96512		Cape Fear Public Transportation Authority	7.75%					
96521	70375	Carolina Beach, Town Of	7.75%	8.64%		0.14%		
96531	73090	Wilmington, City Of	7.75%	8.64%		0.14%		
96541	71515	Kure Beach, Town Of	7.75%	8.64%		0.14%		
96601	72060	Northampton County	7.83%	8.64%	0.08%	0.14%		
96604		Northampton County A.B.C. Board	8.00%		0.25%			
96611	72432	Rich Square, Town Of	7.75%	8.64%		0.14%		
96612		Choanoke Public Transportation Authority	7.75%					
96621	73162	Woodland, Town Of	7.75%	8.64%		0.14%		
96631	71020	Garysburg, Town Of	7.75%	8.64%		0.14%		
96641	70620	Conway, Town Of	7.75%	8.64%		0.14%		
96651	71032	Gaston, Town Of	7.75%	8.64%		0.14%		
96661	71435	Jackson, Town Of	7.75%	8.64%		0.14%		
96671	72595	Severn, Town Of	7.75%					
96681	72591	Seaboard, Town Of	12.46%	13.35%		0.14%	40,605	12/31/2025
96701	72150	Onslow County	7.81%	8.64%	0.06%	0.14%		
96704	72160	Onslow County A.B.C. Board	7.87%		0.12%			
96708		Onslow Water & Sewage Authority	9.10%		0.13%		554,144	6/30/2027

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
96711	71440	Jacksonville, City Of	7.82%	8.64%	0.07%	0.14%		
96721	72745	Swansboro, Town Of	7.82%	8.64%	0.07%	0.14%		
96731	71380	Holly Ridge, Town Of	7.86%	8.64%	0.11%	0.14%		
96733		Holly Ridge Housing Authority	7.80%		0.05%			
96741	72420	Richlands, Town Of	7.75%	8.64%		0.14%		
96751	72789	North Topsail Beach, Town Of	7.90%	8.64%	0.15%	0.14%		
96801	72170	Orange County	7.80%	8.64%	0.05%	0.14%		
96804		Orange County A.B.C. Board	7.82%		0.07%			
96808		Orange Water & Sewer Authority	7.80%		0.05%			
96811	70470	Chapel Hill, Town Of	7.82%	8.64%	0.07%	0.14%		
96821	70372	Carrboro, Town Of	7.81%	8.64%	0.06%	0.14%		
96831	71360	Hillsborough, Town Of	7.80%	8.64%	0.05%	0.14%		
96901	72210	Pamlico County	7.83%	8.64%	0.08%	0.14%		
96911		Bayboro, Town Of	7.75%					
96912	72195	Oriental, Town Of	7.75%	8.64%		0.14%		
96918		Bay River Metro Sewerage District	7.91%		0.16%			
97001	72220	Pasquotank County	7.85%	8.64%	0.10%	0.14%		
97002		Pasquotank-Camden Ambulance Service	7.82%		0.07%			
97004		Pasquotank County A.B.C Board	7.95%		0.20%			
97005		East Albemarle Regional Library	7.81%		0.06%			
97008		Albemarle District Jail Commission	7.75%					
97011	70840	Elizabeth City	7.82%	8.64%	0.07%	0.14%		
97012		Elizabeth-Pasquotank Co Airport Au	10.55%				21,593	6/30/2022
97013		Elizabeth City - Pasquotank Co. Tourism Dev. Auth.	10.02%				29,480	6/30/2033
97015		Pasquotank-Camden Library	7.86%		0.11%			
97018		Elizabeth-Pasquotank Co Ind Dev Co	8.02%		0.27%			
97101	72235	Pender County	7.82%	8.64%	0.07%	0.14%		
97104		Pender County A.B.C. Board	7.87%		0.12%			
97111	70300	Burgaw, Town Of	7.75%	8.64%		0.14%		
97121	72790	Topsail Beach, Town Of	7.85%	8.64%	0.10%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
97131	72725	Surf City	7.82%	8.64%	0.07%	0.14%		
97201	72245	Perquimans County	7.84%	8.64%	0.09%	0.14%		
97211	71300	Hertford, Town Of	7.85%	8.64%	0.10%	0.14%		
97213		Hertford Housing Authority	7.75%					
97217	71305	Hertford A.B.C. Board	7.97%		0.22%			
97221	73124	Winfall, Town Of	7.75%	8.64%		0.14%		
97301	72250	Person County	7.82%	8.64%	0.07%	0.14%		
97304		Person County A.B.C. Board	7.95%		0.20%			
97311	72520	Roxboro, City Of	7.83%	8.64%	0.08%	0.14%		
97401	72310	Pitt County	7.80%	8.64%	0.05%	0.14%		
97402		Pitt-Greenville Convention & Visitors Authority	7.75%					
97404	72320	Pitt County A.B.C. Board	7.80%	8.64%	0.05%	0.14%		
97405		Sheppard Memorial Library	7.85%		0.10%			
97408		Contentnea Metro. Sewage District	7.84%		0.09%			
97411	71160	Greenville, City Of	7.80%	8.64%	0.05%	0.14%		
97412		Greenville Utilities Commission	7.79%		0.04%			
97413		Greenville Housing Authority	7.85%		0.10%			
97421	70930	Farmville, City Of	7.83%	8.64%	0.08%	0.14%		
97423		Farmville Housing Authority	14.69%				182,703	3/31/2028
97431	71170	Grifton, Town Of	7.89%	8.64%	0.14%	0.14%		
97441	70157	Bethel, Town Of	7.83%	8.64%	0.08%	0.14%		
97451	73150	Winterville, Town Of	7.80%	8.64%	0.05%	0.14%		
97461	70100	Ayden, Town Of	7.75%	8.64%		0.14%		
97463		Ayden Housing Authority	7.75%					
97471		Grimesland, Town Of	7.95%		0.20%			
97481	72626	Simpson, Village Of	7.75%	8.64%		0.14%		
97501	72340	Polk County	7.85%	8.64%	0.10%	0.14%		
97511	72823	Tryon, Town Of	7.86%	8.64%	0.11%	0.14%		
97521	70581	Columbus, Town Of	7.75%	8.64%		0.14%		
97531	72560	Saluda, Town Of	7.77%	8.64%	0.02%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
97601	72380	Randolph County	7.81%	8.64%	0.06%	0.14%		
97607		Asheboro A.B.C. Board	7.75%					
97611	70064	Asheboro, City Of	7.83%	8.64%	0.08%	0.14%		
97613		Asheboro Housing Authority	7.86%		0.11%			
97621	72377	Randleman, City Of	7.82%	8.64%	0.07%	0.14%		
97623		Randleman Housing Authority	7.82%		0.07%			
97627		Randleman A.B.C. Board	7.79%		0.04%			
97631	71582	Liberty, Town Of	7.81%	8.64%	0.06%	0.14%		
97637		Liberty A.B.C. Board	7.94%		0.19%			
97641	72375	Ramseur, Town Of	7.75%	8.64%		0.14%		
97651	70063	Archdale, City Of	7.86%	8.64%	0.11%	0.14%		
97661		Trinity, City Of	7.75%					
97701	72430	Richmond County	7.83%	8.64%	0.08%	0.14%		
97705		Sandhill Regional Library	7.81%		0.06%			
97711	72460	Rockingham, City Of	7.84%	8.64%	0.09%	0.14%		
97713		Rockingham Housing Authority	7.79%		0.04%			
97717		Hamlet A.B.C. Board	7.82%		0.07%			
97721	71220	Hamlet, City Of	7.84%	8.64%	0.09%	0.14%		
97727		Rockingham A.B.C. Board	7.85%		0.10%			
97731		Ellerbe, Town Of	7.75%					
97801	72450	Robeson County	7.81%	8.64%	0.06%	0.14%		
97802		Lumber River Council Of Governments	7.79%		0.04%			
97803		Robeson County Housing Authority	7.97%		0.22%			
97805		Robeson County Public Library	7.88%		0.13%			
97811	71670	Lumberton, City Of	7.83%	8.64%	0.08%	0.14%		
97817		Lumberton A.B.C. Board	7.75%					
97818		Lumberton Airport Commission	7.75%					
97821	70910	Fairmont, Town Of	7.93%	8.64%	0.18%	0.14%		
97823		Fairmont Housing Authority	7.83%		0.08%			
97831	72540	St. Pauls, Town Of	7.85%	8.64%	0.10%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
97837		Saint Paul'S A.B.C. Board	7.75%					
97840	71750	Maxton, Town Of	12.83%	13.61%	0.11%	0.14%	266,745	6/30/2024
97841		Town Of Parkton	9.80%				21,432	9/30/2035
97847		Maxton A.B.C. Board	7.93%		0.18%			
97851	72228	Pembroke, Town Of	7.87%	8.64%	0.12%	0.14%		
97853		Pembroke Housing Authority	7.75%					
97861	72510	Rowland, Town Of	8.14%	8.64%	0.39%	0.14%		
97871	72395	Red Springs, Town Of	14.45%	15.23%	0.11%	0.14%	694,259	6/30/2023
97877		Red Springs A.B.C. Board	7.75%					
97901	72470	Rockingham County	7.81%	8.64%	0.06%	0.14%		
97911	72400	Reidsville, Town Of	7.84%	8.64%	0.09%	0.14%		
97913		New Reidsville Housing Authority	7.92%		0.17%		4,521	6/30/2018
97917		Reidsville A.B.C. Board	7.81%		0.06%			
97921	71755	Mayodan, Town Of	7.93%	8.64%	0.18%	0.14%		
97931	72721	Stoneville, Town Of	7.75%	8.64%		0.14%		
97941	71683	Madison, Town Of	7.87%	8.64%	0.12%	0.14%		
97947		Madison A.B.C. Board	11.31%				19,900	12/31/2022
97948		Madison-Mayodan Recreation Comm	7.75%					
97951	70815	Eden, City Of	7.75%	8.64%		0.14%		
97957		Eden A.B.C. Board	7.75%					
98001	72490	Rowan County	7.81%	8.64%	0.06%	0.14%		
98002		Rowan County Tourism Development Board	7.84%				390	6/30/2026
98003		Rowan County Housing Authority	12.10%				96,324	6/30/2021
98004	72500	Rowan County A.B.C. Board	7.94%		0.19%			
98008		Rowan Soil And Water Conservation. Dist	8.79%				2,463	6/30/2023
98011	72550	Salisbury, City Of	7.82%	8.64%	0.07%	0.14%		
98013		Salisbury Housing Authority	14.26%				205,127	6/30/2020
98021	70812	East Spencer, Town Of	7.88%	8.64%	0.13%	0.14%		
98023		East Spencer Housing Authority	7.83%		0.08%			
98031	72665	Spencer, Town Of	7.89%	8.64%	0.14%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
98041	70522	China Grove, Town Of	7.81%	8.64%	0.06%	0.14%		
98051	71522	Landis, Town Of	7.75%	8.64%		0.14%		
98061	71105	Granite Quarry, Town Of	7.80%	8.64%	0.05%	0.14%		
98071	72475	Rockwell, Town Of	7.75%	8.64%		0.14%		
98081		Faith, Town Of	7.75%					
98091	70552	Cleveland, Town Of	7.87%	8.64%	0.12%	0.14%		
98101	72530	Rutherford County	7.83%	8.64%	0.08%	0.14%		
98102		Broad River Water Authority	7.97%		0.05%		5,229	6/30/2020
98103		Rutherford-Polk-Mc Dowell D.H.D	7.81%		0.06%			
98107		Forest City A.B.C. Board	7.75%					
98109		Isothermal Planning & Develop Comm	7.82%		0.07%			
98111	70950	Forest City	7.82%	8.64%	0.07%	0.14%		
98113		Forest City Housing Authority	7.75%					
98121	72670	Spindale, Town Of	7.81%	8.64%	0.06%	0.14%		
98131	71518	Lake Lure, Town Of	7.75%	8.64%		0.14%		
98141	72535	Rutherfordton, Town Of	7.86%	8.64%	0.11%	0.14%		
98147		Rutherfordton A.B.C. Board	7.75%					
98161		Ellenboro, Town Of	7.75%					
98201	72563	Sampson County	7.81%	8.64%	0.06%	0.14%		
98205		J.C. Holliday Memorial Library	7.86%		0.11%			
98211	70555	Clinton, City Of	7.83%	8.64%	0.08%	0.14%		
98218		Clinton A.B.C. Board	7.82%		0.07%			
98221	72547	Salemburg, Town Of	7.84%		0.09%			
98231	72050	Newton Grove, Town Of	7.78%	8.64%	0.03%	0.14%		
98237		Roseboro A.B.C. Board	7.75%					
98241	71000	Garland, Town Of	7.90%		0.15%			
98251		Turkey, Town Of	7.90%		0.15%			
98261	72486	Roseboro, Town Of	7.88%		0.13%			
98271		Autryville, Town Of	8.45%		0.70%			
98301	72580	Scotland County	7.83%	8.64%	0.08%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
98304		Scotland County A.B.C. Board	7.91%		0.16%			
98308		Laurinburg-Maxton Airport Commission	7.75%					
98311	71530	Laurinburg, City Of	7.81%	8.64%	0.06%	0.14%		
98313		Laurenburg Housing Authority	14.53%		0.13%		939,014	12/31/2026
98321	72935	Wagram, Town Of	7.84%	8.64%	0.09%	0.14%		
98331	71051	Gibson, Town Of	9.34%				7,881	3/31/2025
98401	72683	Stanly County	7.84%	8.64%	0.09%	0.14%		
98404		Locust A.B.C. Board	7.75%					
98411	70030	Albemarle, City Of	7.82%	8.64%	0.07%	0.14%		
98414	71786	Misenheimer, Village Of		8.64%		0.14%		
98417		Albemarle A.B.C. Board	9.04%				6,713	6/30/2020
98421	72110	Norwood, Town Of	8.00%	8.64%	0.25%	0.14%		
98427		Norwood A.B.C. Board	7.75%					
98431	71620	Locust, City Of	7.75%	8.64%		0.14%		
98441	72120	Oakboro, Town Of	7.75%	8.64%		0.14%		
98451	70103	Badin, Town Of	7.83%	8.64%	0.08%	0.14%		
98481	72680	Stanfield, Town Of	7.75%	8.64%		0.14%		
98501	72720	Stokes County	7.83%	8.64%	0.08%	0.14%		
98511	72975	Walnut Cove, Town Of	7.86%		0.11%			
98517		Walnut Cove A.B.C. Board	7.75%					
98521	71487	King, Town Of	7.80%	8.64%	0.05%	0.14%		
98601	72730	Surry County	7.81%	8.64%	0.06%	0.14%		
98604		Yadkin Valley Abc Board	7.75%					
98607		Pilot Mountain A.B.C. Board	7.75%					
98608		Yadkin Valley Sewer Authority	7.75%					
98611	72280	Pilot Mountain, Town Of	7.85%	8.64%	0.10%	0.14%		
98621	70735	Dobson, Town Of	7.84%	8.64%	0.09%	0.14%		
98627		Dobson A.B.C. Board	7.75%					
98631	71910	Mount Airy, Town Of	7.91%	8.64%	0.16%	0.14%		
98637		Mt. Airy Alcoholic Board Of Control	7.92%		0.17%			

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
98641	70855	Elkin, Town Of	7.83%	8.64%	0.08%	0.14%		
98701	72740	Swain County	7.83%	8.64%	0.08%	0.14%		
98711	70285	Bryson City, Town Of	7.84%	8.64%	0.09%	0.14%		
98717		Bryson City A.B.C. Board	7.83%		0.08%			
98801	72800	Transylvania County	7.82%	8.64%	0.07%	0.14%		
98811	70260	Brevard, City Of	7.83%	8.64%	0.08%	0.14%		
98817		Brevard A.B.C. Board	7.75%					
98901	72825	Tyrrell County	7.85%	8.64%	0.10%	0.14%		
98904		Tyrrell County A.B.C. Board	7.82%		0.07%			
98911		Columbia, Town Of	7.75%					
99001	72830	Union County	7.81%	8.64%	0.06%	0.14%		
99011	71800	Monroe, City Of	7.81%	8.64%	0.06%	0.14%		
99013		Monroe Housing Authority	7.81%		0.06%			
99014		Indian Trail Abc Board	9.62%		0.15%		37,810	6/30/2037
99017		Monroe A.B.C. Board	8.01%		0.26%			
99021	71720	Marshville, Town Of	7.94%	8.64%	0.19%	0.14%		
99022		Town Of Mineral Springs	12.45%				57,316	9/30/2034
99031	73125	Wingate, Town Of	7.83%	8.64%	0.08%	0.14%		
99041	72995	Waxhaw, Town Of	7.80%	8.64%	0.05%	0.14%		
99047		Waxhaw A.B.C. Board	7.75%					
99051		Indian Trail, Town Of	7.79%		0.04%			
99061		Unionville, Town Of	7.75%				5,066	6/30/2018
99071		Weddington, Town Of	10.88%		0.12%		39,673	6/30/2024
99081		Marvin, Village Of	7.75%					
99091		Wesley Chapel, Village Of	7.75%					
99101	72890	Vance County	7.82%	8.64%	0.07%	0.14%		
99104		Vance County A.B.C. Board	7.75%					
99109		Kerr-Tar Regional Council Of Governments	7.80%		0.05%			
99110		Kerr-Area Transportation Authority	7.75%					
99111	71270	Henderson, City Of	7.87%	8.64%	0.12%	0.14%		

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			General Employees	Law Enforcement	General Employees	Law Enforcement		
99201	72940	Wake County	7.80%	8.64%	0.05%	0.14%		
99202	71385	Holly Springs, Town Of	7.81%	8.64%	0.06%	0.14%		
99203	72485	Rolesville, Town Of	7.75%	8.64%		0.14%		
99204	72950	Wake County A.B.C. Board	7.83%	8.64%	0.08%	0.14%		
99206	71882	Morrisville, Town Of	13.14%	13.99%	0.04%	0.14%	1,148,222	6/30/2019
99207		Wake County Housing Authority	18.16%				1,130,685	12/31/2032
99208		Bayleaf Fire Department	7.75%					
99210		Electricities Of N.C., Inc	7.75%					
99211	72360	Raleigh, City Of	7.75%	8.64%		0.14%		
99212		Durham Highway Fire Protection Age	7.75%					
99213		Raleigh Housing Authority	7.82%		0.07%			
99218	72370	Raleigh-Durham Airport Authority	7.80%	8.64%	0.05%	0.14%		
99221	70400	Cary, Town Of	7.80%	8.64%	0.05%	0.14%		
99222		Centennial Authority, The	7.86%		0.03%		570	9/30/2020
99231	73020	Wendell, Town Of	7.80%	8.64%	0.05%	0.14%		
99241	73210	Zebulon, Town Of	7.79%	8.64%	0.04%	0.14%		
99251	71010	Garner, Town Of	7.80%	8.64%	0.05%	0.14%		
99252		Garner Fire Department	7.78%		0.03%			
99261	70990	Fuquay-Varina, Town Of	7.81%	8.64%	0.06%	0.14%		
99271	70050	Apex, Town Of	7.80%	8.64%	0.05%	0.14%		
99281	72960	Wake Forest, Town Of	7.85%	8.64%	0.10%	0.14%		
99291	71510	Knightdale, Town Of	7.79%	8.64%	0.04%	0.14%		
99301	72980	Warren County	7.83%	8.64%	0.08%	0.14%		
99304	72979	Warren County A.B.C. Board	7.75%					
99311	72055	Norlina, Town Of	7.75%	8.64%		0.14%		
99321	72991	Warrenton, Town Of	14.60%	15.49%		0.14%	652,599	9/30/2037
99401	72985	Washington County	7.85%	8.64%	0.10%	0.14%		
99404		Washington County A.B.C. Board	7.85%		0.10%			
99405		Pettigrew Regional Library	7.87%		0.12%			
99411	72335	Plymouth, Town Of	7.86%	8.64%	0.11%	0.14%		

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## 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, 2018 by all participating employers.

Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
99413		Plymouth Housing Authority	7.83%		0.08%			
99421		Roper, Town Of	7.75%					
99431		Creswell, Town Of	7.78%		0.03%			
99501	72983	Watauga County	7.84%	8.64%	0.09%	0.14%		
99502		Region D Council Of Governments	7.75%					
99508		Blowing Rock Tourism Development Authority	9.05%				6,076	6/30/2021
99509		Watauga County Tourism Develop. Auth.	7.75%					
99511	70240	Boone, Town Of	7.81%	8.64%	0.06%	0.14%		
99521	70220	Blowing Rock, Town Of	7.79%	8.64%	0.04%	0.14%		
99527		Blowing Rock A.B.C. Board	7.75%					
99531	72596	Seven Devils, Town Of	12.73%	13.62%		0.14%	228,818	6/30/2026
99601	72997	Wayne County	7.82%	8.64%	0.07%	0.14%		
99602		Fork Township Sanitary District	7.81%		0.06%			
99603		Eastern Carolina Reg. Housing Auth	7.75%					
99604		Wayne County A.B.C. Board	7.92%	8.64%	0.17%	0.14%		
99609		Southern Wayne Sanitary District	7.87%		0.12%			
99610		Eastern Wayne Sanitary District	7.88%		0.13%			
99611	71070	Goldsboro, City Of	7.82%	8.64%	0.07%	0.14%		
99613		Housing Auth. Of City Of Goldsboro	7.81%		0.06%		222,535	6/30/2018
99621	71940	Mount Olive, Town Of	7.75%	8.64%		0.14%		
99623		Mount Olive Housing Authority	7.75%					
99631	70980	Fremont, Town Of	7.75%	8.64%		0.14%		
99651	72270	Pikeville, Town Of	7.75%	8.64%		0.14%		
99661	72977	Walnut Creek, Village Of	14.81%	15.70%		0.14%	53,255	6/30/2020
99701	73075	Wilkes County	7.82%	8.64%	0.07%	0.14%		
99705		Appalachian Regional Library	7.75%					
99711	72105	North Wilkesboro, Town Of	7.86%	8.64%	0.11%	0.14%		
99717		North Wilkesboro A.B.C. Board	7.82%		0.07%			
99721	73072	Wilkesboro, Town Of	7.82%	8.64%	0.07%	0.14%		
99727		Wilkesboro A.B.C. Board	25.73%				185,808	6/30/2023

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

## 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, 2018 by all participating employers.

Employer Code	LEO Employer Code	Employer	Total Rate**		Death Benefit Rate		12/31/2016 Unfunded Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
			General Employees	Law Enforcement	General Employees	Law Enforcement		
99801	73110	Wilson County	7.80%	8.64%	0.05%	0.14%		
99802		Wilson County Tourism Develop. Authority	7.75%					
99804		Wilson County A.B.C. Board	7.86%		0.11%			
99811	73100	Wilson, City Of	7.80%	8.64%	0.05%	0.14%		
99812		Wilson Economic Development Council	7.75%					
99818		City Of Wilson Cemetery Commission	7.75%					
99821	72684	Stantonsburg, Town Of	7.75%	8.64%		0.14%		
99831	70195	Black Creek, Town Of	7.75%	8.64%		0.14%		
99841	71660	Lucama, Town Of	7.82%		0.07%			
99851	70870	Elm City, Town Of	7.75%					
99901	73170	Yadkin County	7.82%	8.64%	0.07%	0.14%		
99911	73180	Yadkinville, Town Of	7.80%	8.64%	0.05%	0.14%		
99921	71467	Jonesville, Town Of	7.96%	8.64%	0.21%	0.14%		
99931	70805	East Bend, Town Of	7.87%	8.64%	0.12%	0.14%		
99941	70250	Boonville, Town Of	7.75%	8.64%		0.14%		
99991		N.C. Association Of County Comm	7.78%		0.03%			
99999		N.C. League Of Municipalities	7.80%		0.05%			

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

# 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, 2018 by participating employers with an unfunded prior service liability balance at the valuation date.

Employer Code	LEO Employer Code	Employer	12/31/2016 Prior Service Liability	7/1/2018 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
90114		Mebane, Town Of	5,083,090	10.50%	6/30/2033	6/30/2026
90307		Sparta A.B.C. Board	2,784	0.53%	12/31/2028	12/31/2028
90461		Morven, Town Of	4,009	4.48%	6/30/2019	6/30/2019
90507		West Jefferson Abc Board	29,408	3.22%	6/30/2035	6/30/2028
90602		Avery County Fire Commission	239,705	6.25%	12/31/2038	12/31/2038
90651	72724	Sugar Mountain, Town Of	312,438	7.14%	3/31/2027	6/30/2025
90861	71556	Lewiston-Woodville, Town Of	3,013	1.04%	6/30/2024	6/30/2024
91007		Calabash A.B.C. Board	2,079		3/31/2019	6/30/2017
91009		Brunswick County Tourism Develop. Authority	8,970	1.01%	9/30/2031	6/30/2024
91013		Southeast Brunswick Sanitary District	199,715	5.81%	9/30/2039	9/30/2039
91020		Belville, Town Of	8,846	0.64%	6/30/2031	6/30/2031
91026		Town Of Navassa	256,805	7.27%	6/30/2035	6/30/2035
91047		Sunset Beach A.B.C. Board	23,790	12.14%	9/30/2019	6/30/2019
91104		Woodfin Abc Commission	11,719	1.51%	9/30/2033	9/30/2033
91147		Weaverville A.B.C. Board	15,878	0.93%	9/30/2034	6/30/2032
91202		Burke-Catawba Dist. Confinement Fa	18,469	0.68%	3/31/2020	6/30/2019
91261		Connelly Springs, Town Of	1,839		9/30/2027	6/30/2018
91308		Cabarrus Co. Tourism Auth	60,562	0.67%	9/30/2032	6/30/2028
91321		Mount Pleasant, Town Of	70,446	6.14%	12/31/2027	6/30/2021
91457		Lenoir A.B.C. Board	91,936	9.60%	3/31/2023	3/31/2023
91681	70080	Atlantic Beach, Town Of	1,231,147	6.23%	3/31/2028	6/30/2025
91818		Western Piedmont Council Of Governments	384,884		3/31/2023	6/30/2018
91904		Chatham County A.B.C. Board	1,161		12/31/2017	12/31/2017
92351	71178	Grover, Town Of	7,408	1.97%	9/30/2020	9/30/2020
92431	70908	Fair Bluff, Town Of	6,877		9/30/2017	9/30/2017
92571		Cove City, Town Of	4,488		9/30/2026	6/30/2018
92614		Fayetteville Public Works Commission	9,599,820	5.23%	3/31/2027	6/30/2022
92661	72676	Spring Lake, Town Of	1,745,639	6.62%	9/30/2024	9/30/2024
92671		Falcon, Town Of	19,105	6.42%	6/30/2026	6/30/2026
92913		Thomasville Housing Authority	254,443	16.43%	6/30/2027	6/30/2024

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The table below provides the contribution rates payable for the year beginning July 1, 2018 by participating employers with an unfunded prior service liability balance at the valuation date.

Employer Code	LEO Employer Code	Employer	12/31/2016 Prior Service Liability	7/1/2018 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
92941		Midway, Town Of	30,078	2.29%	3/31/2038	6/30/2031
93031	70624	Cooleemee, Town Of	84,109	6.20%	9/30/2027	9/30/2027
93212		Durham Convention And Visitors Bureau	748,678	5.71%	9/30/2028	9/30/2028
93461		Walkertown, Town Of	3,216	1.19%	12/31/2019	12/31/2019
93618		Gaston Co. Economic Dev. Commission	67,606	10.07%	12/31/2022	6/30/2022
93623		Belmont Housing Authority	3,565		3/31/2018	3/31/2018
93647		Cherryville A.B.C. Board	32,683	13.21%	12/31/2023	12/31/2023
93821		Robbinsville, Town Of	5,948		3/31/2023	6/30/2017
94002		Maury Sanitary Land District	1,550	0.89%	3/31/2020	3/31/2020
94031		Walstonburg, Town Of	45,132	7.28%	9/30/2033	9/30/2033
94431	70362	Canton, Town Of	357,318	4.73%	6/30/2020	6/30/2020
94437		Canton A.B.C. Board	45,942	4.88%	12/31/2027	12/31/2027
94551		Mills River, Town Of	1,007		9/30/2028	6/30/2017
95103		Benson Housing Authority	142,993	3.93%	12/31/2036	12/31/2036
95106		Archer Lodge, Town Of	3,715	0.53%	9/30/2037	6/30/2030
95113		Smithfield Housing Authority	222,439	10.68%	6/30/2023	6/30/2023
95122		Micro, Town Of	9,246	2.47%	3/31/2036	3/31/2036
95191		Wilson'S Mills, Town Of	45,712	2.82%	3/31/2032	6/30/2023
95413		Kinston Housing Authority	75,568		3/31/2022	6/30/2017
95504		Lincoln County A.B.C. Board	11,347	1.14%	12/31/2028	12/31/2028
95813		Williamston Housing Authority	83,913	11.57%	3/31/2019	3/31/2019
95831		Hamilton, Town Of	10,809		9/30/2018	6/30/2018
95851	72445	Robersonville, Town Of	211,943	9.63%	12/31/2019	12/31/2019
96405		Braswell Memorial Library	39,832	1.20%	6/30/2026	6/30/2020
96503		Wilmington Housing Authority	836,372	6.35%	6/30/2024	6/30/2024
96681	72591	Seaboard, Town Of	40,605	4.71%	12/31/2025	12/31/2025
96708		Onslow Water & Sewage Authority	554,144	1.22%	12/31/2028	6/30/2027
97012		Elizabeth-Pasquotank Co Airport Au	21,593	2.80%	9/30/2024	6/30/2022
97013		Elizabeth City - Pasquotank Co. Tourism Dev. Auth.	29,480	2.27%	6/30/2033	6/30/2033
97423		Farmville Housing Authority	182,703	6.94%	3/31/2028	3/31/2028

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

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Employer Code	LEO Employer Code	Employer	12/31/2016 Prior Service Liability	7/1/2018 Prior Service Rate	Original Date of Liquidation of Prior Service Liability	Estimated Date of Liquidation of Prior Service Liability*
97840	71750	Maxton, Town Of	266,745	4.97%	6/30/2027	6/30/2024
97841		Town Of Parkton	21,432	2.05%	9/30/2035	9/30/2035
97871	72395	Red Springs, Town Of	694,259	6.59%	6/30/2023	6/30/2023
97913		New Reidsville Housing Authority	4,521		3/31/2019	6/30/2018
97947		Madison A.B.C. Board	19,900	3.56%	12/31/2022	12/31/2022
98002		Rowan County Tourism Development Board	390	0.09%	6/30/2026	6/30/2026
98003		Rowan County Housing Authority	96,324	4.35%	12/31/2021	6/30/2021
98008		Rowan Soil And Water Conservation. Dist	2,463	1.04%	6/30/2023	6/30/2023
98013		Salisbury Housing Authority	205,127	6.51%	12/31/2022	6/30/2020
98102		Broad River Water Authority	5,229	0.17%	3/31/2025	6/30/2020
98313		Laurens Housing Authority	939,014	6.65%	12/31/2026	12/31/2026
98331	71051	Gibson, Town Of	7,881	1.59%	3/31/2025	3/31/2025
98417		Albemarle A.B.C. Board	6,713	1.29%	12/31/2023	6/30/2020
99014		Indian Trail Abc Board	37,810	1.72%	6/30/2039	6/30/2037
99022		Town Of Mineral Springs	57,316	4.70%	9/30/2034	9/30/2034
99061		Unionville, Town Of	5,066		3/31/2028	6/30/2018
99071		Weddington, Town Of	39,673	3.01%	3/31/2029	6/30/2024
99206	71882	Morrisville, Town Of	1,148,222	5.35%	6/30/2027	6/30/2019
99207		Wake County Housing Authority	1,130,685	10.41%	12/31/2032	12/31/2032
99222		Centennial Authority, The	570	0.08%	9/30/2020	9/30/2020
99321	72991	Warrenton, Town Of	652,599	6.85%	9/30/2037	9/30/2037
99508		Blowing Rock Tourism Development Authority	6,076	1.30%	3/31/2029	6/30/2021
99531	72596	Seven Devils, Town Of	228,818	4.98%	6/30/2026	6/30/2026
99613		Housing Auth. Of City Of Goldsboro	222,535		6/30/2020	6/30/2018
99661	72977	Walnut Creek, Village Of	53,255	7.06%	3/31/2026	6/30/2020
99727		Wilkesboro A.B.C. Board	185,808	17.98%	3/31/2024	6/30/2023

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## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Aberdeen, Town Of	96331	70005	Avery-Mitchell-Yancey Dist. Library	90605	
Ahoskie, Town Of	94611	70007	Ayden Housing Authority	97463	
Airport Commission Of Forsyth County	93402		Ayden, Town Of	97461	70100
Alamance Community Fire Dist.,Inc	94109		B.H.M. Regional Library	90705	
Alamance County	90101	70020	Badin, Town Of	98451	70103
Alamance, Village Of	90151		Bailey, Town Of	96451	70104
Albemarle A.B.C. Board	98417		Bakersville, Town Of	96121	70105
Albemarle District Jail Commission	97008		Bald Head Island, Village Of	91091	70107
Albemarle Regional Library	90805		Banner Elk, Town Of	90611	70110
Albemarle Regional Plan. & Develop. Com	92109		Bay River Metro Sewerage District	96918	
Albemarle, City Of	98411	70030	Bayboro, Town Of	96911	
Alexander County	90201	70032	Bayleaf Fire Department	99208	
Alexander County Health Department	90203		Beaufort County	90701	70130
Alexander County Library	90205		Beaufort County A.B.C. Board	90704	
Alexander County Welfare Department	90206		Beaufort Housing Authority	91633	
Alleghany County	90301	70035	Beaufort, Town Of	91631	70145
Alliance Behavioral Healthcare	93209		Beech Mountain, Town Of	90631	70146
Andrews, Town Of	92021	70036	Belhaven, Town Of	90731	70147
Angier A.B.C. Board	94347		Belmont Housing Authority	93623	
Angier, Town Of	94351	70038	Belmont, City Of	93621	70150
Anson County	90401	70040	Belville, Town Of	91020	
Ansonville, Town Of	90451		Benson Housing Authority	95103	
Apex, Town Of	99271	70050	Benson, Town Of	95141	70170
Appalachian District Health Department	90099		Bermuda Run, Town Of	93021	
Appalachian Regional Library	99705		Bertie County	90801	70180
Archdale, City Of	97651	70063	Bertie County A.B.C. Board	90804	
Archer Lodge, Town Of	95106		Bertie-Martin Regional Jail Comm	90808	
Ashe County	90501	70065	Bessemer City, City Of	93671	
Asheboro A.B.C. Board	97607		Bethel, Town Of	97441	70157
Asheboro Housing Authority	97613		Beulaville, Town Of	93111	70160
Asheboro, City Of	97611	70064	Biltmore Forest, Town Of	91111	70190
Asheville A.B.C. Board	91127	70072	Biscoe, Town Of	96231	70192
Asheville Regional Airport Authority	91128	70074	Black Creek, Town Of	99831	70195
Asheville, City Of	91121	70070	Black Mountain A.B.C. Board	91154	
Atlantic Beach, Town Of	91681	70080	Black Mountain, Town Of	91151	70200
Aulander, Town Of	90811	70082	Bladen County	90901	70210
Aurora, Town Of	90721	70085	Bladenboro, Town Of	90941	70215
Autryville, Town Of	98271		Blowing Rock A.B.C. Board	99527	
Avery County	90601	70090	Blowing Rock Tourism Development Authority	99508	
Avery County Fire Commission	90602		Blowing Rock, Town Of	99521	70220

## Appendix J: Participating Employers

Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Blue Ridge Fire Department	94532		Caldwell County	91401	70350
Boiling Spring Lakes A.B.C. Board	91077		Calypso, Town Of	93171	
Boiling Spring Lakes, City Of	91071	70225	Camden County	91501	70357
Boiling Springs, Town Of	92331	70230	Camden County A.B.C. Board	91504	
Boone, Town Of	99511	70240	Cameron, Town Of	96312	70358
Boonville, Town Of	99941	70250	Candor, Town Of	96241	70360
Braswell Memorial Library	96405		Canton A.B.C. Board	94437	
Brevard A.B.C. Board	98817		Canton, Town Of	94431	70362
Brevard, City Of	98811	70260	Cape Carteret, Town Of	91671	70365
Bridgeton, Town Of	92561		Cape Fear Council Of Governments	91008	
Broad River Water Authority	98102		Cape Fear Public Transportation Authority	96512	
Broadway, Town Of	95321	70265	Cape Fear Public Utility Authority	96507	
Brookford, Town Of	91861	70270	Carolina Beach, Town Of	96521	70375
Brunswick County	91001	70280	Carolina Shores, Town Of	91024	
Brunswick County A.B.C. Board	91004		Carrboro, Town Of	96821	70372
Brunswick County Health Department	91003		Carteret County	91601	70380
Brunswick County Tourism Develop. Authority	91009		Carteret County A.B.C. Board	91604	70385
Brunswick County Welfare Department	91006		Carthage, Town Of	96391	70390
Brunswick, Town Of	92421		Cary, Town Of	99221	70400
Bryson City A.B.C. Board	98717		Caswell Beach, Town Of	91051	70405
Bryson City, Town Of	98711	70285	Caswell County	91701	70415
Buncombe County	91101	70290	Caswell County A.B.C. Board	91704	
Bunn A.B.C. Board	93537		Caswell County Welfare Department	91706	
Bunn, Town Of	93531	70295	Catawba County	91801	70430
Burgaw, Town Of	97111	70300	Catawba County A.B.C. Board	91804	70440
Burke County	91201	70310	Catawba, Town Of	91881	70441
Burke County Health Department	91203		Cedar Point, Town Of	91691	
Burke County Tourism Development Authority	91208		Centennial Authority, The	99222	
Burke County Welfare Department	91206		Centralina Council Of Governments	96009	
Burke-Catawba Dist. Confinement Fa	91202		Chadbourn, Town Of	92441	70450
Burlington, City Of	90111	70320	Chadburn A.B.C. Board	92444	
Burlington-Graham A.B.C. Board	90117		Chapel Hill, Town Of	96811	70470
Burnsville, Town Of	90011	70330	Charlott Housing Authority	96003	
Butner, Town Of	93931		Charlotte Auditorium-Coliseum	96012	
Cabarrus Co. Public Health Auth	91306		Charlotte Fire Ret Sys Board Of Trust	96018	
Cabarrus Co. Tourism Auth	91308		Charlotte, City Of	96011	70480
Cabarrus County	91301	70340	Charlotte-Mecklenburg Public Libra	96005	
Cajah'S Mountain, Town Of	91461		Chatham County	91901	70490
Calabash A.B.C. Board	91007		Chatham County A.B.C. Board	91904	
Calabash, Town Of	91010		Chatham County Housing Authority	91903	

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Cherokee County	92001	70500	Craven County A.B.C. Board	92504	
Cherryville A.B.C. Board	93647		Craven County Airport Authority	92506	
Cherryville, City Of	93641	70520	Craven-Pamlico-Carteret Regional Library	92505	
China Grove, Town Of	98041	70522	Creedmoor, City Of	93921	70660
Choanoke Public Transportation Authority	96612		Creswell, Town Of	99431	
Chocowinity, Town Of	90751	70525	Cumberland County	92601	70680
Chowan County	92101	70530	Cumberland County A.B.C. Board	92604	70685
Chowan County A.B.C. Board	92104		Currituck County	92701	70700
City Of Wilson Cemetery Commission	99818		Currituck County A.B.C. Board	92704	
Claremont, Town Of	91821	70535	Dallas, Town Of	93651	70705
Clarkton, Town Of	90931	70537	Dare County	92801	70720
Clay County	92201	70538	Dare County A.B.C. Board	92804	70721
Clayton, Town Of	95131	70540	Dare County Tourism Board	92802	
Clemmons Fire Department	93442		Davidson County	92901	70723
Clemmons, Village Of	93441		Davidson, Town Of	96081	70724
Cleveland County	92301	70550	Davie County	93001	70725
Cleveland County Sanitary District	92302		Davie Soil & Water Conservation District	93009	
Cleveland, Town Of	98091	70552	Denton, Town Of	92921	70730
Clinton A.B.C. Board	98218		Dobson A.B.C. Board	98627	
Clinton, City Of	98211	70555	Dobson, Town Of	98621	70735
Coastal Regional Waste Management Authority	92508		Drexel, Town Of	91221	70745
Coats, Town Of	94341	70570	Duck, Town Of	92861	70755
Cofield, Town Of	94641		Dunn A.B.C. Board	94317	
Colerain, Town Of	90813	70575	Dunn Housing Authority	94313	
Colfax Volunteer Fire Department	94168		Dunn, Town Of	94311	70760
Columbia, Town Of	98911		Duplin County	93101	70770
Columbus County	92401	70580	Duplin County Tourism Development Authority	93103	
Columbus, Town Of	97521	70581	Duplin-Sampson Area Mental Health	93108	
Concord A.B.C. Board	91317		Durham Convention And Visitors Bureau	93212	
Concord, City Of	91311	70590	Durham County	93201	70790
Connelly Springs, Town Of	91261		Durham County A.B.C. Board	93204	70800
Conover, Town Of	91851	70610	Durham Highway Fire Protection Age	99212	
Contentnea Metro. Sewage District	97408		Durham, City Of	93211	70780
Conway, Town Of	96641	70620	East Albemarle Regional Library	97005	
Cooleemee A.B.C. Board	93027		East Bend, Town Of	99931	70805
Cooleemee, Town Of	93031	70624	East Spencer Housing Authority	98023	
Cornelius, Town Of	96051	70625	East Spencer, Town Of	98021	70812
Cove City, Town Of	92571		Eastern Band Of Cherokee Indians	70505	70505
Cramerton, Town Of	93631	70640	Eastern Carolina Reg. Housing Auth	99603	
Craven County	92501	70650	Eastern Wayne Sanitary District	99610	

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Eastover, Town Of	92681		Forest City A.B.C. Board	98107	
Eden A.B.C. Board	97957		Forest City Housing Authority	98113	
Eden, City Of	97951	70815	Fork Township Sanitary District	99602	
Edenton, Town Of	92111	70817	Forsyth County	93401	70951
Edgecombe County	93301	70820	Four Oaks, Town Of	95151	70954
Edgecombe County A.B.C. Board	93304		Foxfire Village	96381	70953
Edgecombe-Nash Memorial Library	93305		Franklin County	93501	70960
Electricities Of N.C., Inc	99210		Franklin, Town Of	95611	70955
Elizabeth City	97011	70840	Franklinton A.B.C. Board	93517	
Elizabeth City - Pasquotank Co. Tourism Dev. Auth.	97013		Franklinton, Town Of	93511	70970
Elizabeth-Pasquotank Co Airport Au	97012		Fremont, Town Of	99631	70980
Elizabeth-Pasquotank Co Ind Dev Co	97018		Fuquay-Varina, Town Of	99261	70990
Elizabethtown A.B.C. Board	90917		Garland, Town Of	98241	71000
Elizabethtown, Town Of	90911	70850	Garner Fire Department	99252	
Elk Park, Town Of	90641	70860	Garner, Town Of	99251	71010
Elkin, Town Of	98641	70855	Garysburg, Town Of	96631	71020
Ellenboro, Town Of	98161		Gaston Co. Economic Dev. Commission	93618	
Ellerbe, Town Of	97731		Gaston County	93601	71030
Elm City, Town Of	99851	70870	Gaston, Town Of	96651	71032
Elon College, Town Of	90131	70880	Gastonia A.B.C. Board	93617	
Emerald Isle, Town Of	91651	70890	Gastonia, City Of	93611	71040
Enfield, Town Of	94211	70895	Gaston-Lincoln Area Mental Health	93609	
Erwin, Town Of	94331	70900	Gates County	93701	71050
Fair Bluff, Town Of	92431	70908	Gates County A.B.C. Board	93704	71052
Fairmont Housing Authority	97823		Gibson, Town Of	98331	71051
Fairmont, Town Of	97821	70910	Gibsonville A.B.C. Board	94157	
Faison, Town Of	93141	70920	Gibsonville, Town Of	94151	71060
Faith, Town Of	98081		Glen Alpine, Town Of	91241	71065
Falcon, Town Of	92671		Goldsboro, City Of	99611	71070
Farmville Housing Authority	97423		Goldston-Gulf Sanitary District	91908	
Farmville, City Of	97421	70930	Graham County	93801	71085
Fayetteville Metro. Housing Authority	92613		Graham County Health Department	93803	
Fayetteville Public Works Commission	92614		Graham County Welfare Department	93806	
Fayetteville, City Of	92611	70940	Graham, City Of	90121	71080
First Craven Sanitary District	92502		Granite Falls A.B.C. Board	91417	
Flat Rock, Village Of	94531		Granite Falls, Town Of	91411	71090
Fletcher A.B.C. Board	94547		Granite Quarry, Town Of	98061	71105
Fletcher, Town Of	94541	70943	Granville County	93901	71110
Fontana Regional Library	95005		Granville County A.B.C. Board	93904	
Forest City	98111	70950	Granville County Hospital	93906	

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Granville-Vance Health District	93908		Hickory/Conover Tourism Dev. Authority	91812	
Greater Statesville Development Co	94908		High Country Municipal A.B.C. Board	90617	
Green Level, Town Of	90161		High Point A.B.C. Board	94127	
Greene County	94001	71130	High Point, City Of	94121	71340
Greene County A.B.C. Board	94004		Highlands A.B.C. Board	95617	
Greensboro A.B.C. Board	94117	71150	Highlands, Town Of	95621	71335
Greensboro, City Of	94111	71140	Hildebrand, Town Of	91251	
Greenville Housing Authority	97413		Hillsborough, Town Of	96831	71360
Greenville Utilities Commission	97412		Hobgood, Town Of	94251	
Greenville, City Of	97411	71160	Hoke County	94701	71370
Grifton, Town Of	97431	71170	Hoke County A.B.C. Board	94704	
Grimesland, Town Of	97471		Holden Beach, Town Of	91014	71375
Grover, Town Of	92351	71178	Holly Ridge Housing Authority	96733	
Guilford Fire District	94118		Holly Ridge, Town Of	96731	71380
Guilford, County Of	94101	71180	Holly Springs, Town Of	99202	71385
Guil-Rand Fire Department	94102	0	Hookerton, Town Of	94011	0
Halifax County	94201	71200	Hope Mills, Town Of	92631	71390
Halifax County A.B.C. Board	94204		Hot Springs Housing Authority	95733	
Halifax County Tourism Development Authority	94205		Housing Auth. Of City Of Goldsboro	99613	
Hamilton, Town Of	95831		Hudson, Town Of	91431	71395
Hamlet A.B.C. Board	97717		Huntersville, Town Of	96041	71397
Hamlet, City Of	97721	71220	Hyde County	94801	71400
Harnett County	94301	71230	Hyde County A.B.C. Board	94804	
Harrisburg, Town Of	91441		Indian Beach, Town Of	91661	71405
Havelock, City Of	92531	71240	Indian Trail Abc Board	99014	
Haw River, Town Of	90141	71245	Indian Trail, Town Of	99051	
Haywood County	94401	71250	Iredell County	94901	71420
Haywood County Tourism	94403		Isothermal Planning & Develop Comm	98109	
Henderson County	94501	71275	J.C. Holliday Memorial Library	98205	
Henderson, City Of	99111	71270	Jackson County	95001	71430
Hendersonville A.B.C. Board	94517		Jackson, Town Of	96661	71435
Hendersonville, City Of	94511	71280	Jacksonville, City Of	96711	71440
Hertford A.B.C. Board	97217	71305	Jamestown, Town Of	94131	71442
Hertford County	94601	71310	Jamesville, Town Of	95841	
Hertford County A.B.C. Board	94604	71320	Jefferson, Town Of	90511	71447
Hertford County Public Health Authority	94606		Johnston County	95101	71460
Hertford Housing Authority	97213		Johnston County A.B.C. Board	95104	
Hertford, Town Of	97211	71300	Johnston County Memorial Hospital Authority	95110	
Hickory Housing Authority	91813		Johnston County Public Library	95105	
Hickory, City Of	91811	71330	Jones County	95201	71465

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Jones County A.B.C. Board	95204		Lewisville, Town Of	93451	
Jonesville, Town Of	99921	71467	Lexington A.B.C. Board	92917	
Junaluska Sanitary District	94408		Lexington, City Of	92931	71570
Kannapolis, Town Of	91331	71468	Liberty A.B.C. Board	97637	
Kenansville A.B.C. Board	93127		Liberty, Town Of	97631	71582
Kenansville, Town Of	93121	71469	Lilesville, Town Of	90421	71584
Kenly, Town Of	95171	71472	Lillington, Town Of	94321	71585
Kernersville, Town Of	93421	71470	Lincoln County	95501	71590
Kerr-Area Transportation Authority	99110		Lincoln County A.B.C. Board	95504	
Kerr-Tar Regional Council Of Governments	99109		Lincolnton A.B.C. Board	95517	
Kill Devil Hills, Town Of	92821	71480	Lincolnton Housing Authority	95513	0
King, Town Of	98521	71487	Lincolnton, City Of	95511	71600
Kings Mountain A.B.C. Board	92327		Linden, Town Of	92651	
Kings Mountain, City Of	92321	71490	Littleton, Town Of	94261	71615
Kinston Housing Authority	95413		Locust A.B.C. Board	98404	
Kinston, City Of	95411	71500	Locust, City Of	98431	71620
Kinston-Lenoir County Library	95415		Long View, Town Of	91841	71640
Kitty Hawk, Town Of	92851	71507	Louisburg A.B.C. Board	93527	
Knightdale, Town Of	99291	71510	Louisburg, Town Of	93521	71650
Kure Beach, Town Of	96541	71515	Lowell, Town Of	93661	71655
Lagrange, Town Of	95431	71517	Lower Cape Fear Water & Sewer Auth	96508	
Lake Lure, Town Of	98131	71518	Lucama, Town Of	99841	71660
Lake Waccamaw A.B.C. Board	92427		Lumber River Council Of Governments	97802	
Lake Woccamaw, Town Of	92461	71519	Lumberton A.B.C. Board	97817	
Landis, Town Of	98051	71522	Lumberton Airport Commission	97818	
Land-Of-Sky Regional Council	91102		Lumberton, City Of	97811	71670
Laurel Park A.B.C. Board	94527		Macclesfield, Town Of	93341	
Laurel Park, Town Of	94521	71525	Macon County	95601	71680
Laurenburg Housing Authority	98313		Madison A.B.C. Board	97947	
Laurinburg, City Of	98311	71530	Madison County	95701	71684
Laurinburg-Maxton Airport Commission	98308		Madison, Town Of	97941	71683
Lawndale, Town Of	92341	71532	Madison-Mayodan Recreation Comm	97948	
Lee County	95301	71535	Maggie Valley A.B.C. Board	94427	
Leland, Town Of	91002	71540	Maggie Valley Sanitary District	94428	
Lenoir A.B.C. Board	91457		Maggie Valley, Town Of	94421	71685
Lenoir County	95401	71550	Magnolia, Town Of	93191	71690
Lenoir County A.B.C. Board	95404		Maiden, Town Of	91831	71700
Lenoir Housing Authority	91423		Manteo, Town Of	92831	71705
Lenoir, City Of	91451	71552	Marion A.B.C. Board	95917	
Lewiston-Woodville, Town Of	90861	71556	Marion, Town Of	95911	71710

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Mars Hill, Town Of	95711	71718	Moore County A.B.C. Board	96304	71840
Marshall, Town Of	95721	71711	Moore County Airport Authority	96310	
Marshville, Town Of	99021	71720	Moore County Tourism Develop. Auth.	96305	
Martin County	95801	71730	Moore County A.B.C. Board	94927	
Martin County A B C Board	95804		Mooresville Housing Authority	94923	
Martin County Travel & Tourism Authority	95802	0	Mooresville, City Of	94921	71850
Martin-Tyrell-Washington D.H.D	90092		Morehead City, Town Of	91611	71860
Marvin, Village Of	99081		Morganton A.B.C. Board	91217	71880
Matthews, Town Of	96071	71740	Morganton Housing Authority	91233	
Maury Sanitary Land District	94002		Morganton, City Of	91231	71870
Maxton A.B.C. Board	97847		Morrisville, Town Of	99206	71882
Maxton, Town Of	97840	71750	Morven, Town Of	90461	
Mayodan, Town Of	97921	71755	Mount Airy, Town Of	98631	71910
Maysville, Town Of	95221	71745	Mount Gilead, Town Of	96251	71920
Mc Dowell County	95901	71762	Mount Olive Housing Authority	99623	
Mcadenville, Town Of	93610	71760	Mount Olive, Town Of	99621	71940
Mebane, Town Of	90114		Mount Pleasant, Town Of	91321	
Mecklenburg County	96001	71770	Mt. Airy Alcoholic Board Of Control	98637	
Mecklenburg County A.B.C. Board	96004	71780	Mt. Holly, City Of	93691	71930
Mecklenburg County Ems Agency	96008		Mt. Pleasant A.B.C. Board	91327	
Metro Sewerage Dist Of Buncombe County	91108		Murfreesboro, Town Of	94621	71970
Mi Connection Communications System	94941		Murphy A.B.C. Board	92017	
Micro, Town Of	95122		Murphy, Town Of	92011	71975
Middlesex, Town Of	96431	71785	N.C. Association Of County Comm	99991	
Mideast Economic Development Comm	90709		N.C. League Of Municipalities	99999	
Midland, Town Of	91341		Nags Head, Town Of	92811	71980
Midway, Town Of	92941		Nantahala Regional Library	92005	
Mills River, Town Of	94551		Nash County	96401	71990
Mint Hill, Town Of	96031	71775	Nash County A.B.C. Board	96404	72000
Misenheimer, Village Of	98414	71786	Nashville, Town Of	96421	71995
Mitchell County	96101	71788	Neuse Regional Library	95405	
Mitchell Soil & Water Conserv. District	96102		Neuse Regional Library - Jones County	95205	
Mocksville, Town Of	93011	71790	Neuse River Council Of Governments	92507	
Monroe A.B.C. Board	99017		New Bern, City Of	92511	72020
Monroe Housing Authority	99013		New Hanover Airport Authority	96502	72024
Monroe, City Of	99011	71800	New Hanover County	96501	72030
Montgomery County	96201	71815	New Hanover County A.B.C. Board	96504	
Montgomery-Municipal A.B.C. Board	96204		New Reidsville Housing Authority	97913	
Montreat, Town Of	91161	71820	Newland, Town Of	90621	72032
Moore County	96301	71830	Newport, Town Of	91621	72035

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Newton Grove, Town Of	98231	72050	Pender County A.B.C. Board	97104	0
Newton, Town Of	91871	72040	Perquimans County	97201	72245
Norlina, Town Of	99311	72055	Person County	97301	72250
North Brunswick Sanitary District	91042		Person County A.B.C. Board	97304	
North Topsail Beach, Town Of	96751	72789	Pettigrew Regional Library	99405	
North Wilkesboro A.B.C. Board	99717		Piedmont Triad Airport Authority	72265	72265
North Wilkesboro, Town Of	99711	72105	Piedmont Triad Regional Council	93406	
Northampton County	96601	72060	Piedmont Triad Regional Water Authority	94112	
Northampton County A.B.C. Board	96604		Pikeville, Town Of	99651	72270
Northwest, City Of	91012	72076	Pilot Mountain A.B.C. Board	98607	
Northwestern Regional Library	90305		Pilot Mountain, Town Of	98611	72280
Norwood A.B.C. Board	98427		Pine Knoll Shores, Town Of	91641	72290
Norwood, Town Of	98421	72110	Pine Level, Town Of	95161	72295
Oak Island A.B.C. Board	91027		Pinebluff, Town Of	96361	72285
Oak Island, Town Of	91021	71630	Pinecroft-Sedgefield Fire District	94108	
Oak Ridge, Town Of	94161		Pinehurst, Village Of	96351	72287
Oakboro, Town Of	98441	72120	Pinetops, Town Of	93331	72296
Ocean Isle A.B.C. Board	91067		Pineville, Town Of	96021	72300
Ocean Isle Beach, Town Of	91061	72135	Pink Hill, Town Of	95421	72305
Ocracoke Sanitary District	94812		Pitt County	97401	72310
Old Fort, Town Of	95921	72140	Pitt County A.B.C. Board	97404	72320
Onslow County	96701	72150	Pitt-Greenville Convention & Visitors Authority	97402	
Onslow County A.B.C. Board	96704	72160	Pittsboro, Town Of	91921	72330
Onslow Water & Sewage Authority	96708		Pleasant Garden Fire Department	95908	
Orange County	96801	72170	Plymouth Housing Authority	99413	
Orange County A.B.C. Board	96804		Plymouth, Town Of	99411	72335
Orange Water & Sewer Authority	96808		Polk County	97501	72340
Oriental, Town Of	96912	72195	Polkton, Town Of	90431	72345
Oxford Housing Authority	93913		Pollocksville, Town Of	95211	
Oxford, City Of	93911	72200	Princeton, Town Of	95181	72349
Pamlico County	96901	72210	Princeville, Town Of	93351	72351
Pas.-Per.-Camden-Chowan D.H.D.	90096		Raeford, Town Of	94711	72355
Pasquotank County	97001	72220	Raleigh Housing Authority	99213	
Pasquotank County A.B.C Board	97004		Raleigh, City Of	99211	72360
Pasquotank-Camden Ambulance Service	97002		Raleigh-Durham Airport Authority	99218	72370
Pasquotank-Camden Library	97015	0	Ramseur, Town Of	97641	72375
Peachland, Town Of	90441		Randleman A.B.C. Board	97627	
Pembroke Housing Authority	97853		Randleman Housing Authority	97623	
Pembroke, Town Of	97851	72228	Randleman, City Of	97621	72377
Pender County	97101	72235	Randolph County	97601	72380

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Ranlo, Town Of	93681	72390	Roxboro, City Of	97311	72520
Red Springs A.B.C. Board	97877		Rural Hall, Town Of	93431	
Red Springs, Town Of	97871	72395	Rutherford College, Town Of	91214	
Region D Council Of Governments	99502		Rutherford County	98101	72530
Region L Council Of Governments	93309		Rutherford-Polk-Mc Dowell D.H.D	98103	
Region M Council Of Governments	92607		Rutherfordton A.B.C. Board	98147	
Reidsville A.B.C. Board	97917		Rutherfordton, Town Of	98141	72535
Reidsville, Town Of	97911	72400	Saint Paul'S A.B.C. Board	97837	
Rich Square, Town Of	96611	72432	Salemburg, Town Of	98221	72547
Richlands, Town Of	96741	72420	Salisbury Housing Authority	98013	
Richmond County	97701	72430	Salisbury, City Of	98011	72550
River Bend, Town Of	92541	72435	Saluda, Town Of	97531	72560
Roanoke Rapids Sanitary District	94209		Sampson County	98201	72563
Roanoke Rapids, City Of	94221	72440	Sandhill Regional Library	97705	
Robbins, Town Of	96341	72443	Sandhills Center	96318	
Robbinsville, Town Of	93821		Sanford A.B.C. Board	95317	
Robersonville Housing Authority	95853		Sanford, City Of	95311	72565
Robersonville, Town Of	95851	72445	Sawmills, Town Of	91421	
Robeson County	97801	72450	Scotland County	98301	72580
Robeson County Housing Authority	97803		Scotland County A.B.C. Board	98304	
Robeson County Public Library	97805		Scotland Neck, Town Of	94241	72590
Rockingham A.B.C. Board	97727		Seaboard, Town Of	96681	72591
Rockingham County	97901	72470	Selma Housing Authority	95123	
Rockingham Housing Authority	97713		Selma, Town Of	95121	72594
Rockingham, City Of	97711	72460	Seven Devils, Town Of	99531	72596
Rockwell, Town Of	98071	72475	Severn, Town Of	96671	72595
Rocky Mount Housing Authority	93333		Shallotte A.B.C. Board	91057	
Rocky Mount, City Of	93321	72480	Shallotte, Town Of	91081	72597
Rocky Mount-Wilson Airport Authority	93323		Sharpsburg, Town Of	96461	72600
Rolesville, Town Of	99203	72485	Shelby A.B.C. Board	92317	
Roper, Town Of	99421		Shelby, City Of	92311	72610
Rose Hill, Town Of	93161	72487	Sheppard Memorial Library	97405	
Roseboro A.B.C. Board	98237		Siler City A.B.C. Board	91917	
Roseboro, Town Of	98261	72486	Siler City, Town Of	91911	72625
Rowan County	98001	72490	Simpson, Village Of	97481	72626
Rowan County A.B.C. Board	98004	72500	Skyland Volunteer Fire Department	91138	
Rowan County Housing Authority	98003		Smithfield Housing Authority	95113	
Rowan County Tourism Development Board	98002		Smithfield, Town Of	95111	72630
Rowan Soil And Water Conservation. Dist	98008		Smoky Mountain Mental Health Center	95009	
Rowland, Town Of	97861	72510	Snow Hill, Town Of	94021	

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
South Granville Water And Sewer Authority	93910		Sylva, Town Of	95011	72750
Southeast Brunswick Sanitary District	91013		Tabor City, Town Of	92451	72760
Southeastern Economic Develop. Com	90918		Tarboro Redevelopment Commission	93317	
Southern Pines, Town Of	96311	72640	Tarboro, Town Of	93311	72770
Southern Shores, Town Of	92841	72645	Taylorsville, Town Of	90211	72775
Southern Wayne Sanitary District	99609		Taylortown, Town Of	96302	72776
Southport A.B.C. Board	91017		Teachey, Town Of	93181	
Southport, City Of	91011	72650	The New Edenton Housing Authority	92113	
Southwestern Plan. & Econ. Dev. Co	95008		Thomasville A.B.C. Board	92914	
Sparta A.B.C. Board	90307		Thomasville Housing Authority	92913	
Sparta, Town Of	72657	72657	Thomasville, City Of	92911	72780
Spencer, Town Of	98031	72665	Tobaccoville, Village Of	93471	
Spindale, Town Of	98121	72670	Toe River District Health Department	90098	
Spring Hope, Town Of	96411	72675	Topsail Beach, Town Of	97121	72790
Spring Lake, Town Of	92661	72676	Town Of Mineral Springs	99022	
Spruce Pine, Town Of	96111	72678	Town Of Navassa	91026	
St. James, Town Of	91032		Town Of Parkton	97841	
St. Pauls, Town Of	97831	72540	Town Of Seagrove	72593	72593
Stallings, Town Of	96061	72679	Transylvania County	98801	72800
Stanfield, Town Of	98481	72680	Trent Woods, Town Of	92521	72810
Stanley, Town Of	93602	72682	Triangle J Council Of Governments	93219	
Stanly County	98401	72683	Trillium Health Resources	92513	
Stantonsburg, Town Of	99821	72684	Trinity, City Of	97661	
Star, Town Of	96211	72685	Troutman, Town Of	94931	72815
Statesville A.B.C. Board	94917	72710	Troy, Town Of	96221	72822
Statesville, City Of	94911	72700	Tryon, Town Of	97511	72823
Stedman, Town Of	92621	72715	Tuckaseegee Water And Sewer Auth	95002	
Stokes County	98501	72720	Turkey, Town Of	98251	
Stoneville, Town Of	97931	72721	Tyrrell County	98901	72825
Stovall, Town Of	93914		Tyrrell County A.B.C. Board	98904	
Sugar Mountain, Town Of	90651	72724	Union County	99001	72830
Summerfield Fire District	94172		Unionville, Town Of	99061	
Summerfield, Town Of	94171		Valdese Housing Authority	91213	
Sunset Beach A.B.C. Board	91047		Valdese, Town Of	91211	72883
Sunset Beach, Town Of	91041	72723	Vance County	99101	72890
Surf City	97131	72725	Vance County A.B.C. Board	99104	
Surry County	98601	72730	Vanceboro, Town Of	92551	72910
Swain County	98701	72740	Vass, Town Of	96321	72920
Swansboro, Town Of	96721	72745	Wade, Town Of	92641	
Sylva A.B.C. Board	95017		Wadesboro A.B.C. Board	90417	

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Employer	Employer Code	LEO Employer Code	Employer	Employer Code	LEO Employer Code
Wadesboro Housing Authority	90413		West Jefferson, Town Of	90521	73025
Wadesboro, Town Of	90411	72930	Westarea Volunteer Fire Department	92602	
Wagram, Town Of	98321	72935	Western Cartert Interlocal Agency	91608	
Wake County	99201	72940	Western Nc Regional Air Pollution Control	91107	
Wake County A.B.C. Board	99204	72950	Western Piedmont Council Of Governments	91818	
Wake County Housing Authority	99207		Western Piedmont Regional Transit Authority	91819	
Wake Forest, Town Of	99281	72960	Whispering Pines, Village Of	96371	73040
Walkertown, Town Of	93461		Whitakers, Town Of	96441	73045
Wallace A.B.C. Board	93157		White Lake, Town Of	90921	73050
Wallace, Town Of	93151	72970	Whiteville A.B.C. Board	92417	
Walnut Cove A.B.C. Board	98517		Whiteville Housing Authority	92403	
Walnut Cove, Town Of	98511	72975	Whiteville, City Of	92411	73060
Walnut Creek, Village Of	99661	72977	Wilkes County	99701	73075
Walstonburg, Town Of	94031		Wilkesboro A.B.C. Board	99727	
Warren County	99301	72980	Wilkesboro, Town Of	99721	73072
Warren County A.B.C. Board	99304	72979	Williamston Housing Authority	95813	
Warrenton, Town Of	99321	72991	Williamston, City Of	95811	73080
Warsaw A.B.C. Board	93137		Wilmington Housing Authority	96503	
Warsaw, Town Of	93131	72981	Wilmington, City Of	96531	73090
Washington County	99401	72985	Wilson County	99801	73110
Washington County A.B.C. Board	99404		Wilson County A.B.C. Board	99804	
Washington Park, Town Of	90741		Wilson County Tourism Develop. Authority	99802	
Washington, City Of	90711	72990	Wilson Economic Development Council	99812	
Watauga County	99501	72983	Wilson, City Of	99811	73100
Watauga County Tourism Develop. Auth.	99509		Wilson'S Mills, Town Of	95191	
Water & Sewer Authority Of Cabarrus County	91302		Windsor, Town Of	90812	73122
Waxhaw A.B.C. Board	99047		Winfall, Town Of	97221	73124
Waxhaw, Town Of	99041	72995	Wingate, Town Of	99031	73125
Wayne County	99601	72997	Winston-Salem A.B.C. Board	93417	73140
Wayne County A.B.C. Board	99604		Winston-Salem Housing Authority	93413	
Waynesville A.B.C. Board	94412	73015	Winston-Salem, City Of	93411	73130
Waynesville, Town Of	94411	73010	Winterville, Town Of	97451	73150
Weaverville A.B.C. Board	91147		Winton, Town Of	94631	73155
Weaverville, Town Of	91141	73016	Woodfin Abc Commission	91104	
Weddington, Town Of	99071		Woodfin Sanitary Water & Sewer District	91109	
Weldon, Town Of	94231	73017	Woodfin, Town Of	91171	73160
Wendell, Town Of	99231	73020	Woodland, Town Of	96621	73162
Wesley Chapel, Village Of	99091		Wrightsville Beach, Town Of	96511	73165
West Buncombe Fire Department	91120		Yadkin County	99901	73170
West Jefferson Abc Board	90507		Yadkin Valley Abc Board	98604	

## Appendix J: Participating Employers

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