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# **National Guard Pension Fund Principal Results of Actuarial Valuation as of December 31, 2018**

## **October 31, 2019 Board of Trustees Meeting**

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





# Member Data

## Inputs

Membership Data

Asset Data

Benefit Provisions

Assumptions

Funding Methodology



## Results

Actuarial Value of Assets

Actuarial Accrued Liability

Net Actuarial Gain or Loss

Funded Ratio

Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

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

Number as of	12/31/2018	12/31/2017
Active Members	5,511	5,890
Terminated Members Entitled to Benefits but Not Yet Receiving	5,304	5,679
Retired Members Currently Receiving Benefits	<u>4,621</u>	<u>4,574</u>
Total	15,436	16,143

The total number of active members decreased by 6.4% from the previous valuation date and the total number of terminated members decreased by 6.9%. These decreases were primarily due to service data clean-ups that the Guard performed.

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

# Valuation Input

## Asset Data



### Inputs

Membership Data

Asset Data

Benefit Provisions

Assumptions

Funding Methodology



### Results

Actuarial Value of Assets

Actuarial Accrued Liability

Net Actuarial Gain or Loss

Funded Ratio

Employer Contributions

Benefit Enhancement

Additional Disclosures

Projections

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

Asset Data as of	12/31/2018	12/31/2017
Beginning of Year Market Value of Assets	\$ 128,243,463	\$ 113,183,427
Contributions	8,997,543	8,863,769
Benefit Payments	(8,769,311)	(8,687,860)
Expenses	(133,715)	(202,680)
Investment Income	(1,811,262)	15,086,807
Net Increase/(Decrease)	(1,716,745)	15,060,036
End of Year Value of Assets	\$ 126,526,718	\$ 128,243,463
Estimated Net Investment Return	-1.41%	13.14%

National Guard Pension Fund Assets are held in trust and are invested for the exclusive benefit of plan members.

Over the long term, benefit payments and administrative expenses not covered by contributions are expected to be covered with investment income, illustrating the benefits of following actuarial pre-funding since inception.



# Net Actuarial Gain or Loss

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

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

Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2017	\$ 52.5
Normal Cost and Administrative Expense during 2018	0.5
Reduction due to Actual Contributions during 2018	(9.0)
Interest on UAAL, Normal Cost, and Contributions	3.4
Asset (Gain) / Loss	2.5
Actuarial Accrued Liability (Gain) / Loss	(12.4)
Impact of Assumption Changes	0.0
Impact of Legislative Changes	0.0
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2018	\$ 37.5

Changes in the Actuarial Accrued Liability (AAL) decreased the UAAL by \$12.4 million. This decrease was primarily due to service data clean-ups that the Guard performed (resulting in about a 5% improvement in the funded percentage in 2018). The gain in the AAL was partially offset by the loss recognized in the actuarial value of assets during the year which increased the UAAL by \$2.5 million.

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



# Valuation Results

## Funded Ratio

The table below provides a summary of the results of this valuation compared to the prior valuation.

Due to a history of retroactive benefit increases, the funded status of this plan is lower than the others in the North Carolina Retirement Systems. The funded ratio increased from 70.7% to 78.0% as of 12/31/2018. This is primarily due to service data clean-up.

Valuation Results as of	12/31/2018	12/31/2017
<b>Assets</b>		
Actuarial Value (AVA)	\$ 133,139,365	\$ 126,639,220
Market Value (MVA)	\$ 126,526,718	\$ 128,243,463
<b>Actuarial Accrued Liability (AAL)</b>	\$ 170,653,291	\$ 179,112,961
<b>Unfunded Accrued Liability (AAL - AVA)</b>	\$ 37,513,926	\$ 52,473,741
<b>Funded Ratio (AVA / AAL)</b>	78.0%	70.7%

### Inputs

- Membership Data
- Asset Data
- Benefit Provisions
- Assumptions
- Funding Methodology



### Results

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



# Employer Contributions

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

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

Fiscal year ending June 30, 2020 Preliminary ADEC (based on December 31, 2017 valuation)	\$ 9,031,715
Impact of Legislative Changes	<u>0</u>
Fiscal year ending June 30, 2020 Final ADEC	\$ 9,031,715
Change Due to Demographic (Gain)/Loss*	(1,664,839)
Change Due to Investment (Gain)/Loss	331,714
Change Due to Contributions Greater than ADEC	(71,669)
Impact of Assumption Changes	0
Direct Rate Smoothing	<u>167,452</u>
Fiscal year ending June 30, 2021 Preliminary ADEC (based on December 31, 2018 valuation)	\$ 7,794,373

\*Majority of gain due to data clean-up.

The change in rate due to investment loss is based on the actuarial value of assets returns, which was less than the 7.00% assumed return. The impact of the asset loss was an increase in employer contribution of \$331,714. Demographic gains decreased the contribution by \$1,664,839, primarily due to data clean-up.

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



# Employer Contributions

## Inputs

Membership Data  
Asset Data  
Benefit Provisions  
Assumptions  
Funding Methodology



## Results

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

### Employer Contributions

Benefit Enhancement  
Additional Disclosures  
Projections

The table below provides a summary of the employer contribution development for this valuation compared to the prior valuation.

Results for Fiscal Year Ending	6/30/2021	6/30/2020
Actuarially Determined Employer Contribution (ADEC)		
Normal Cost	\$ 456,228	\$ 538,612
Accrued Liability	7,505,597	8,828,007
Total	\$ 7,961,825	\$ 9,366,619
Final ADEC Based on Direct Rate Smoothing	\$ 7,794,373	\$ 9,031,715
Additional Contribution Under State Contribution Rate Stabilization Policy (SCRSP)*	3,237,342	2,000,000
Total Contribution	\$ 11,031,715	\$ 11,031,715
Appropriation Act for Fiscal Year Ending	6/30/2020	6/30/2019
Legislative Appropriation	\$ 11,031,715	\$ 9,071,933

\*According to the SCRSP adopted on April 25, 2019 and effective through June 30, 2022, if the General Assembly appropriates contributions that exceed the ADEC, such excess contributions, and the earnings thereon as estimated by the consulting actuary, should be excluded in future years when estimating the unfunded actuarial accrued liability that must be amortized. This provision is intended to ensure that any contributions exceeding the ADEC are not used to reduce the ADEC in a subsequent year within the term of this policy.

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



# Certification

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

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

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

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



**Cavanaugh Macdonald**  
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# North Carolina National Guard Pension Fund

Report on the Actuarial Valuation  
Prepared as of December 31, 2018

October 2019





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 15, 2019

Board of Trustees  
Teachers' and State Employees'  
Retirement System of North Carolina  
3200 Atlantic Avenue  
Raleigh, NC 27604

Members of the Board:

We submit herewith our report on the actuarial valuation of the National Guard Pension Fund of North Carolina (referred to as "the Fund") prepared as of December 31, 2018. The report has been prepared in accordance with Chapter 127A of the North Carolina General Statutes. Information contained in our report for plan years prior to December 31, 2017 is based upon valuations performed by the prior actuary.

The primary purpose of the valuation report is to determine the required employer contribution rates, to describe the current financial condition of the Fund, 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 Systems Division and Department of State Treasurer staff may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. Because of the risk of misinterpretation of actuarial results, you should ask Cavanaugh Macdonald Consulting (CMC) to review any statement you wish to make on the results contained in this report. CMC will not accept any liability for any such statement made without prior review.

The results of this report are based upon participant data supplied by the Retirement Systems Division (RSD) and financial data supplied by the Financial Operations Division. CMC reviewed the data for reasonableness and consistency with data for the prior valuation, but performed no audit of the data. The results of this report are dependent on the accuracy of the data. Sometimes assumptions are made by CMC to interpret membership data that is imperfect. The valuation does not include members with less than seven years of service. Furthermore, in order to be eligible to receive a benefit from the National Guard Pension Fund, members are required to have twenty years of total military service, of which at least fifteen must be North Carolina National Guard service. Since the North Carolina National Guard service amounts that we receive appear to be incomplete, the valuation liabilities for active and terminated vested members are determined based only on reported total military service. The net impact of these data issues is unclear.

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, 2018 actuarial valuation are based on the experience study prepared as of December 31, 2014 and adopted by the Board of Trustees on January 21, 2016, as further updated to use a discount rate of 7.00% in conjunction with direct-rate smoothing of the employer contribution rate, as adopted by the Board of Trustees on April 26, 2018. The economic assumptions with respect to investment yield, salary increase and inflation have been based upon a review of the existing portfolio structure as well as recent and anticipated experience.

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

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

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

Respectively Submitted,

A handwritten signature in blue ink, appearing to be 'LL'.

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

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

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



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## Section 1: Summary of Principal Results

1. This report, prepared as of December 31, 2018, presents the results of the actuarial valuation of the Fund. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below.

**Table 1: Summary of Principal Results**

<b>Valuation Results as of</b>	<b>12/31/2018</b>	<b>12/31/2017</b>
Active Members Number	5,511	5,890
Retired Members and Survivors of Deceased Members Currently Receiving Benefits Number	4,621	4,574
Annual Pensions	\$ 8,621,788	\$ 8,539,983
Terminated Members Entitled to but Not Yet Receiving Benefits Number	5,304	5,679
Annual Deferred Pensions	\$ 8,820,378	\$ 9,816,786
Assets		
Actuarial Value (AVA)	\$ 133,139,365	\$ 126,639,220
Market Value (MVA)	\$ 126,526,718	\$ 128,243,463
Actuarial Accrued Liability (AAL)	\$ 170,653,291	\$ 179,112,961
Unfunded Accrued Liability (AAL - AVA)	\$ 37,513,926	\$ 52,473,741
Funded Ratio (AVA / AAL)*	78.0%	70.7%
<b>Results for Fiscal Year Ending</b>	<b>6/30/2021</b>	<b>6/30/2020</b>
Actuarially Determined Employer Contribution (ADEC)		
Normal Cost	\$ 456,228	\$ 538,612
Accrued Liability	7,505,597	8,828,007
Total	\$ 7,961,825	\$ 9,366,619
Final ADEC Based on Direct Rate Smoothing	\$ 7,794,373	\$ 9,031,715
Additional Contribution Under State Contribution Rate Stabilization Policy (SCRSP)**	3,237,342	2,000,000
Total Contribution	\$ 11,031,715	\$ 11,031,715
<b>Appropriation Act for Fiscal Year Ending</b>	<b>6/30/2020</b>	<b>6/30/2019</b>
Legislative Appropriation	\$ 11,031,715	\$ 9,071,933

\*The Funded Ratio on a Market Value of Assets basis is 74.1% at December 31, 2018.

\*\* According to the SCRSP adopted on April 25, 2019 and effective through June 30, 2022, if the General Assembly appropriates contributions that exceed the ADEC, such excess contributions, and the earnings thereon as estimated by the consulting actuary, should be excluded in future years when estimating the unfunded actuarial accrued liability that must be amortized. This provision is intended to ensure that any contributions exceeding the ADEC are not used to reduce the ADEC in a subsequent year within the term of this policy.



## Section 1: Summary of Principal Results

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2. The following table shows a reconciliation of the change in the actuarially determined employer contribution computed to be \$9,031,715 based on the December 31, 2017 valuation and \$7,794,373 based on the December 31, 2018 valuation.

**Table 2: Reconciliation of Change in Actuarially Determined Employer Contribution (ADEC)**

Fiscal year ending June 30, 2020 Preliminary ADEC (based on December 31, 2017 valuation)	\$ 9,031,715
Impact of Legislative Changes	<u>0</u>
Fiscal year ending June 30, 2020 Final ADEC	\$ 9,031,715
Change Due to Demographic (Gain)/Loss*	(1,664,839)
Change Due to Investment (Gain)/Loss	331,714
Change Due to Administrative Expense (Gain)/Loss	(71,669)
Impact of Assumption Changes	0
Direct Rate Smoothing	<u>167,452</u>
Fiscal year ending June 30, 2021 Preliminary ADEC (based on December 31, 2018 valuation)	\$ 7,794,373

\*Majority of gain due to data clean-up.



## Section 1: Summary of Principal Results

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3. Tables summarizing the membership of the Fund as of the valuation date are shown in Section 2.
4. The valuation balance sheet showing the assets and liabilities of the Fund as of the current and previous valuation dates is provided in Section 3.
5. An allocation of investments by category is shown in Section 4.
6. Comments on the experience and actuarial gains/losses during the valuation year are provided in Section 5.
7. Comments on the actuarially determined employer contribution are provided in Section 6.
8. Accounting information to be disclosed in the financial statements of the Plan is provided in Section 7.
9. Appendix A of this report presents the development of the actuarial value of assets.
10. Appendix B of this report presents the development of the amortization of the unfunded accrued liability.
11. Appendix C of this report outlines the full set of actuarial assumptions and methods employed.
12. Appendix D gives a summary of the benefit provisions of the system.
13. Appendix E provides the projection of cash flows used to determine the discount rate under GASB Statement No. 67.
14. Appendix F provides detailed tabulations of the membership of the system as of the valuation date.



## Section 2: Membership Data

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Data regarding the membership of the Fund for use as a basis for the valuation were furnished by the Retirement Systems Division. The following table summarizes the membership of the Fund as of December 31, 2018 upon which the valuation was based. Detailed tabulations of the data are given in Appendix F.

**Table 3: Membership of the Fund as of December 31, 2018**

	<b>Member Count</b>	<b>Average Age</b>	<b>Average Service</b>	<b>Annual Pensions</b>
Active Members	5,511	37.89	14.97	N/A
Retired Members Currently Receiving Benefits	4,621	71.71	N/A	\$ 8,621,788
Terminated Members Entitled to Benefits but Not Yet Receiving Benefits	5,304	58.60	N/A	\$ 8,820,378



## Section 3: Valuation Balance Sheet

The following valuation balance sheet shows the assets and liabilities of the Retirement Fund as of the current valuation date of December 31, 2018. Appendix A summarizes the development of the actuarial value of assets.

**Table 4: Valuation Balance Sheet Showing the Present and Prospective Assets and Liabilities of the North Carolina National Guard Pension Fund Prepared as of December 31, 2018**

<b>Assets</b>	
Current Actuarial Value of Assets	\$ 133,139,365
Present Value of Prospective Contributions Payable by State	
Normal Contributions	\$ 1,672,862
Unfunded Accrued Liability Contributions	<u>37,513,926</u>
Total Prospective Contributions by State	<u>\$ 39,186,788</u>
Total Assets	<u><u>\$ 172,326,153</u></u>
<b>Liabilities</b>	
Present Value of Pensions Payable to Retired Members Currently Receiving Benefits	\$ 76,374,361
Present Value of Deferred Pensions Payable to Terminated Members Entitled to Benefits but Not Yet Receiving Benefits	71,293,978
Present Value of Prospective Pensions to Active Members included in the Valuation	24,657,814
Reserve for Increases in Retirement Pensions	<u>0</u>
Total Liabilities	<u><u>\$ 172,326,153</u></u>

The valuation balance sheet shows that the total present value of the prospective benefit payments as of December 31, 2018 amounts to \$172,326,153. Of this amount, \$76,374,361 represents the present value of future pension payments to retired members currently receiving benefits, \$24,657,814 represents the present value of prospective pensions which will become payable to present active members and \$71,293,978 represents the present value of future pension payments to terminated members entitled to benefits but not yet receiving benefits. Against these liabilities, the Fund has an actuarial value of assets of \$133,139,365 leaving a balance of \$39,186,788 to be provided by future contributions of the State. Of this amount, \$1,672,862 represents the present value of prospective normal contributions, and the balance of \$37,513,926 represents the present value of unfunded accrued liability contributions.



## Section 4: Asset Allocation

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The following table shows an allocation of investments by category as of December 31, 2018.

**Table 5: Allocation of Investments by Category for the National Guard Pension Fund as of December 31, 2018**

Cash and Receivables	7.3%
Fixed Income (LTIF)	26.1%
Public Equity	35.8%
Other*	<u>30.8%</u>
Total	100.0%

\* Real Estate, Alternatives, Inflation and Credit.



## Section 5: Comments on Experience and Gains/Losses

The following table shows a detailed reconciliation of the change in unfunded accrued liability since the prior valuation.

**Table 6: Reconciliation of Change in Unfunded Actuarial Accrued Liability Since the Prior Valuation**  
(in millions)

Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2017	\$ 52.5
Normal Cost and Administrative Expense during 2018	0.5
Reduction due to Actual Contributions during 2018	(9.0)
Interest on UAAL, Normal Cost, and Contributions	3.4
Asset (Gain) / Loss	2.5
Actuarial Accrued Liability (Gain) / Loss	(12.4)
Impact of Assumption Changes	0.0
Impact of Legislative Changes	0.0
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2018	\$ 37.5

**Commentary:** Changes in the Actuarial Accrued Liability (AAL) decreased the UAAL by \$12.4 million. This decrease was primarily due to service data clean-ups that the Guard performed (resulting in about a 5% improvement in the funded percentage in 2018). The gain in the AAL was partially offset by the loss recognized in the actuarial value of assets during the year which increased the UAAL by \$2.5 million.



## Section 6: Actuarially Determined Employer Contribution

The normal contribution covers the cost of benefits based on current service. The valuation indicates that the annual normal contribution payable by the State is equal to \$58.47 multiplied by the number of active members. Based on 5,511 active members included in the valuation, the normal contribution is \$322,228

The unfunded actuarial accrued liability is amortized within a 12-year period through an annual unfunded accrued liability contribution. According to the SCRSP adopted on April 25, 2019 and effective through June 30, 2022, if the General Assembly appropriates contributions that exceed the ADEC, such excess contributions, and the earnings thereon as estimated by the consulting actuary, should be excluded in future years when estimating the unfunded actuarial accrued liability that must be amortized. This provision is intended to ensure that any contributions exceeding the ADEC are not used to reduce the ADEC in a subsequent year within the term of this policy. Assuming that the unfunded accrued liability is amortized based on the amortization schedule shown in Appendix B, with the payments covering both the principal amount and the accruing interest thereon at the rate of 7.00% per annum, the annual unfunded actuarial accrued liability contribution would be \$7,505,597.

Based on the present membership and the amortization schedule described above, the following table shows the total annual contributions payable by the State for the fiscal years ending June 30, 2021 and June 30, 2020.

**Table 7: Actuarially Determined Employer Contribution (ADEC)**

Contribution	Annual Amount FY Ending 6/30/2021	Annual Amount FY Ending 6/30/2020
Normal Cost	\$ 322,228	\$ 335,612
Administrative Expenses	134,000	203,000
Total	\$ 456,228	\$ 538,612
Accrued Liability	7,505,597	8,828,007
Total	\$ 7,961,825	\$ 9,366,619
Impact of Direct Rate Smoothing	(167,452)	(334,904)
Preliminary ADEC	\$ 7,794,373	\$ 9,031,715



## Section 7: Accounting Information

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The section contains the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 67 for fiscal year ending June 30, 2019 based on a valuation date of December 31, 2018.

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

The June 30, 2019 total pension liability presented in this section was determined by an actuarial valuation as of December 31, 2018, 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 8: Number of Active and Retired Members  
as of December 31, 2018**

Group	Number
Retired members and survivors of deceased members currently receiving benefits	4,621
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	5,304
Active Members	<u>5,511</u>
Total	15,436



## Section 7: Accounting Information

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

Schedule of Changes in Net Pension Liability as of June 30, 2019	
<b>Total Pension Liability</b>	
Service Cost	\$ 327,000
Interest	12,368,000
Changes of Benefit Terms	0
Difference between Expected and Actual Experience	(12,701,000)
Change of Assumptions	0
Benefit Payments, including Refund of Member Contributions	<u>(8,736,000)</u>
Net Change in Total Pension Liability	(8,742,000)
Total Pension Liability - Beginning of Year	\$ 180,976,000
Total Pension Liability - End of Year	\$ 172,234,000
<b>Plan Fiduciary Net Position</b>	
Employer Contributions	\$ 9,072,000
Member Contributions	0
Net Investment Income	8,463,000
Benefit Payments, including Refund of Member Contributions	(8,736,000)
Administrative Expenses	(13,000)
Other	<u>(16,000)</u>
Net Change in Plan Fiduciary Net Position	8,770,000
Plan Fiduciary Net Position - Beginning of Year	\$ 129,803,000
Plan Fiduciary Net Position - End of Year	\$ 138,573,000

**Table 10: Net Pension Liability (Asset)**

Net Pension Liability (Asset)		
	June 30, 2018	June 30, 2018
Total Pension Liability	\$ 172,234,000	\$ 180,976,000
Plan Fiduciary Net Position	<u>138,573,000</u>	<u>129,803,000</u>
Net Pension Liability (Asset)	\$ 33,661,000	\$ 51,173,000
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (Asset)	80.46%	71.72%



## Section 7: Accounting Information

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

**Table 11: Sensitivity of the Net Pension Liability (Asset) at June 30, 2019 to Changes in the Discount Rate**

Sensitivity of the Net Pension Liability to Changes in the Discount Rate			
	1% Decrease	Current	1% Increase
Discount Rate	6.00%	7.00%	8.00%
Net Pension Liability (Asset)	\$54,100,000	\$33,661,000	\$16,830,000

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy, including “direct-rate smoothing” as adopted by the Board of Trustees on April 26, 2018. Based on those assumptions, 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 employer contribution rate.

**Table 12: Additional Information for GASB Statement No. 67**

Valuation Date	12/31/2018
Actuarial Cost Method	Entry Age
Amortization Method	Level dollar closed
Amortization Period	12 year closed periods
Asset Valuation Method	Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period (not greater than 120% of market value and not less than 80% of market value)
Actuarial Assumptions:	
Investment Rate of Return*	7.00%
Projected Salary Increases	N/A
*Includes Inflation of	3.00%
Cost-of-living Adjustments	N/A



## Section 8: Risk

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Measuring pension obligations and actuarially determined contributions requires the use of assumptions regarding future economic and demographic experience. Whenever assumptions are made about future events, there is risk that actual experience will differ from expected. Actuarial valuations include the risk that actual future measurements will deviate from expected future measurements due to actual experience that is different than the actuarial assumptions. The primary areas of risk in this actuarial valuation are:

- Investment Risk – the potential that investment returns will be different than expected.
- Longevity and Other Demographic Risks – the potential that mortality or other demographic experience will be different than expected.
- Interest Rate Risk – To the extent market rates of interest affect the expected return on assets, there is a risk of change to the discount rate which determines the present value of liabilities and actuarial valuation results.
- Contribution Risk – The potential that actual contributions are different than the actuarially determined contributions.

Annual actuarial valuations are performed for RSD which re-measure the assets and liabilities and compute a new actuarially determined contribution. RSD also has experience studies performed every five years to analyze the discrepancies between actuarial assumptions and actual experience and determine if the actuarial assumptions need to be changed. Annual actuarial valuations and periodic experience studies are practical ways to monitor and reassess risk.



## Appendix A: Development of Actuarial Value of Assets

Asset Data as of	12/31/2018
Beginning of Year Market Value of Assets	\$ 128,243,463
Contributions	8,997,543
Benefit Payments and Administrative Expenses	<u>(8,903,026)</u>
Net Cash Flow	94,517
Expected Investment Return	8,980,295
Expected End of Year Market Value of Assets	137,318,275
End of Year Market Value of Assets	126,526,718
Excess of Market Value over Expected Market Value of Assets	(10,791,557)
80% of 2018 Asset Gain/(Loss)	(8,633,245)
60% of 2017 Asset Gain/(Loss)	4,037,219
40% of 2016 Asset Gain/(Loss)	(509,053)
20% of 2015 Asset Gain/(Loss)	<u>(1,507,568)</u>
Total Deferred Asset Gain/(Loss)	(6,612,647)
Preliminary End of Year Actuarial Value of Assets	133,139,365
Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value)	133,139,365
Estimated Net Investment Return on Actuarial Value	5.06%
Estimated Net Investment Return on Market Value	-1.41%

**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 all years except 2017 resulted in an actuarial value of asset return for calendar year 2018 of 5.06% and a recognized actuarial asset loss of \$2.5 million during 2018.



## Appendix B: Amortization Schedule for Unfunded Actuarial Accrued Liability

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Date Established	Original Balance	12/31/2018 Outstanding Balance	Annual Payment
December 31, 2009	\$ 40,483,684	\$ 21,353,249	\$ 5,505,105
December 31, 2010	(2,911,753)	(1,816,299)	(395,553)
December 31, 2011	(2,233,724)	(1,593,999)	(303,149)
December 31, 2012	(515,855)	(411,323)	(69,942)
December 31, 2013	4,219,347	3,693,895	571,555
December 31, 2014	7,361,464	6,980,839	996,293
December 31, 2015	16,021,040	16,278,266	2,166,057
December 31, 2016	796,884	859,367	107,552
December 31, 2017	1,856,450	1,986,401	250,089
December 31, 2018	<u>(9,816,470)</u>	<u>(9,816,470)</u>	<u>(1,322,410)</u>
Total		\$ 37,513,926	\$ 7,505,597



## Appendix C: 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 discount rate of 7.00% was adopted by the Board of Trustees on April 26, 2018.

**Interest Rate:** 7.00% per annum, compounded annually.

**Active Members:** The valuation excludes all active members with less than 7 years of service.

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

### Annual Rates of Withdrawal\*

Age	Service			
	<=6	7-9	10-14	15-19
<=24	0.000	0.150	0.080	0.050
25-29	0.000	0.150	0.080	0.050
30-34	0.000	0.150	0.080	0.050
35-39	0.000	0.150	0.080	0.050
40-44	0.000	0.150	0.080	0.050
45-49	0.000	0.150	0.080	0.050
>=50	0.000	0.150	0.080	0.050

\*Applied only to members with less than 20 years of service.

### Annual Rates of

Age	Male	Female	Disability*
	Mortality*	Mortality*	
25	.0005	.0002	.0001
30	.0005	.0002	.0004
35	.0005	.0003	.0010
40	.0006	.0004	.0029
45	.0010	.0007	.0049
50	.0017	.0011	.0084
55	.0028	.0017	.0144
60	.0047	.0024	.0240

\*Base mortality rates as of 2014.



## Appendix C: Actuarial Assumptions and Methods

### Annual Rates of Retirement

Age	Service	
	<=19	>=20
<=54	0.000	0.150
55-59	0.000	0.200
60-64	0.000	0.750
>=65	0.000	1.000

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

### Annual Rates of Death After Retirement

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

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

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

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

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

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



## Appendix C: Actuarial Assumptions and Methods

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**Administrative Expenses:** Prior year's actual administrative expenses are added to Normal Cost.

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

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

**Asset Valuation Method:** Actuarial value, as developed in Appendix A. 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:** Calculation of investment return no longer net of administrative expenses.



## Appendix D: Summary of Main Plan Provisions

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### Membership

All members of the North Carolina National Guard with seven years of service are eligible to be members of the Fund.

### Benefits

#### Service Retirement Pension

Condition for Pension	A member who retires after he or she has attained age 60 and has credit for 20 years of military service, including at least 15 years of North Carolina national guard duty, both reserve and active, and who has received an honorable discharge, is entitled to a monthly pension.
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Amount of Pension	The amount of the pension is equal to \$105 per month for 20 years of creditable service with an additional \$10.50 per month for each additional year of such service, provided that the total pension shall not exceed \$210 per month.
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#### Deferred Early Retirement Pension

Condition for Pension	A member whose service is terminated after he or she has credit for 20 years of military service, including at least 15 years of North Carolina national guard duty, both reserve and active, and who has received an honorable discharge, is eligible to receive a deferred retirement pension commencing at age 60.
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Amount of Pension	The amount is the same as that for a service retirement.
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Normal Form	Life Annuity.
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Optional Form	None.
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### Contributions

The State makes annual contributions sufficient to meet the cost of the benefits under the Fund.

<b>Changes Since Prior Valuation</b>	None.
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# 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
2019	\$ 126,527	\$ -	\$ 8,964	\$ 11,650	\$ 134	\$ 8,760	\$ 132,467
2020	132,467	-	8,297	11,877	119	9,145	137,913
2021	137,913	-	7,978	12,117	106	9,508	143,176
2022	143,176	-	8,337	12,378	95	9,880	148,920
2023	148,920	-	5,721	12,635	85	10,184	152,105
2024	152,105	-	3,373	12,834	76	10,319	152,887
2025	152,887	-	3,860	13,040	68	10,384	154,023
2026	154,023	-	4,021	13,139	61	10,466	155,310
2027	155,310	-	3,748	13,258	54	10,543	156,289
2028	156,289	-	2,943	13,333	47	10,581	156,433
2029	156,433	-	1,342	13,390	41	10,534	154,878
2030	154,878	-	187	13,444	36	10,384	151,969
2031	151,969	-	-	13,475	30	10,173	148,637
2032	148,637	-	511	13,402	25	9,960	145,681
2033	145,681	-	943	13,249	21	9,774	143,128
2034	143,128	-	621	13,090	17	9,589	140,231
2035	140,231	-	443	12,895	14	9,387	137,153
2036	137,153	-	199	12,665	12	9,171	133,846
2037	133,846	-	28	12,412	10	8,943	130,396
2038	130,396	-	23	12,178	8	8,709	126,942
2039	126,942	-	19	11,939	6	8,476	123,491
2040	123,491	-	15	11,746	5	8,241	119,995
2041	119,995	-	12	11,554	4	8,002	116,452
2042	116,452	-	9	11,377	3	7,760	112,841
2043	112,841	-	7	11,209	3	7,513	109,150
2044	109,150	-	5	11,036	2	7,261	105,377
2045	105,377	-	4	10,838	2	7,004	101,545
2046	101,545	-	3	10,610	1	6,743	97,680
2047	97,680	-	2	10,420	1	6,479	93,740
2048	93,740	-	2	10,255	1	6,209	89,695
2049	89,695	-	1	10,074	-	5,932	85,554
2050	85,554	-	1	9,865	-	5,649	81,339
2051	81,339	-	-	9,611	-	5,363	77,091
2052	77,091	-	-	9,275	-	5,077	72,894
2053	72,894	-	-	8,938	-	4,795	68,751
2054	68,751	-	-	8,550	-	4,518	64,719
2055	64,719	-	-	8,149	-	4,250	60,821
2056	60,821	-	-	7,750	-	3,991	57,061
2057	57,061	-	-	7,360	-	3,741	53,442
2058	53,442	-	-	6,980	-	3,501	49,963
2059	49,963	-	-	6,608	-	3,270	46,625
2060	46,625	-	-	6,247	-	3,049	43,427
2061	43,427	-	-	5,896	-	2,837	40,369
2062	40,369	-	-	5,555	-	2,635	37,448
2063	37,448	-	-	5,226	-	2,442	34,664
2064	34,664	-	-	4,908	-	2,258	32,013
2065	32,013	-	-	4,602	-	2,083	29,494
2066	29,494	-	-	4,307	-	1,916	27,103
2067	27,103	-	-	4,024	-	1,759	24,837
2068	24,837	-	-	3,753	-	1,609	22,694



## 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
2069	\$ 22,694	\$ -	\$ -	\$ 3,492	\$ -	\$ 1,468	\$ 20,670
2070	20,670	-	-	3,242	-	1,335	18,764
2071	18,764	-	-	3,002	-	1,210	16,971
2072	16,971	-	-	2,773	-	1,093	15,291
2073	15,291	-	-	2,553	-	983	13,721
2074	13,721	-	-	2,342	-	880	12,258
2075	12,258	-	-	2,141	-	784	10,902
2076	10,902	-	-	1,948	-	696	9,650
2077	9,650	-	-	1,764	-	615	8,501
2078	8,501	-	-	1,589	-	540	7,452
2079	7,452	-	-	1,424	-	473	6,501
2080	6,501	-	-	1,267	-	411	5,646
2081	5,646	-	-	1,119	-	357	4,883
2082	4,883	-	-	981	-	308	4,210
2083	4,210	-	-	853	-	265	3,623
2084	3,623	-	-	735	-	228	3,116
2085	3,116	-	-	627	-	197	2,685
2086	2,685	-	-	529	-	170	2,326
2087	2,326	-	-	442	-	148	2,032
2088	2,032	-	-	364	-	130	1,797
2089	1,797	-	-	296	-	116	1,617
2090	1,617	-	-	237	-	105	1,485
2091	1,485	-	-	187	-	98	1,396
2092	1,396	-	-	145	-	93	1,344
2093	1,344	-	-	110	-	90	1,324
2094	1,324	-	-	82	-	90	1,332
2095	1,332	-	-	60	-	91	1,363
2096	1,363	-	-	43	-	94	1,414
2097	1,414	-	-	30	-	98	1,482
2098	1,482	-	-	20	-	103	1,565
2099	1,565	-	-	13	-	109	1,661
2100	1,661	-	-	9	-	116	1,768
2101	1,768	-	-	5	-	124	1,886
2102	1,886	-	-	3	-	132	2,015
2103	2,015	-	-	2	-	141	2,154
2104	2,154	-	-	1	-	151	2,303
2105	2,303	-	-	1	-	161	2,464
2106	2,464	-	-	-	-	172	2,636
2107	2,636	-	-	-	-	185	2,821
2108	2,821	-	-	-	-	197	3,018
2109	3,018	-	-	-	-	211	3,229
2110	3,229	-	-	-	-	226	3,455
2111	3,455	-	-	-	-	242	3,697
2112	3,697	-	-	-	-	259	3,956
2113	3,956	-	-	-	-	277	4,233
2114	4,233	-	-	-	-	296	4,529
2115	4,529	-	-	-	-	317	4,846
2116	4,846	-	-	-	-	339	5,185
2117	5,185	-	-	-	-	363	5,548
2118	5,548	-	-	-	-	388	5,937



## 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 Using Single Discount Rate of		
					Funded Payments at 7.00%	Unfunded Payments at 3.50%	7.00%
2019	\$ 126,527	\$ 11,650	\$ 11,650	\$ -	\$ 11,262	\$ -	\$ 11,262
2020	132,467	11,877	11,877	-	10,731	-	10,731
2021	137,913	12,117	12,117	-	10,232	-	10,232
2022	143,176	12,378	12,378	-	9,768	-	9,768
2023	148,920	12,635	12,635	-	9,318	-	9,318
2024	152,105	12,834	12,834	-	8,846	-	8,846
2025	152,887	13,040	13,040	-	8,400	-	8,400
2026	154,023	13,139	13,139	-	7,910	-	7,910
2027	155,310	13,258	13,258	-	7,460	-	7,460
2028	156,289	13,333	13,333	-	7,011	-	7,011
2029	156,433	13,390	13,390	-	6,580	-	6,580
2030	154,878	13,444	13,444	-	6,175	-	6,175
2031	151,969	13,475	13,475	-	5,784	-	5,784
2032	148,637	13,402	13,402	-	5,376	-	5,376
2033	145,681	13,249	13,249	-	4,967	-	4,967
2034	143,128	13,090	13,090	-	4,586	-	4,586
2035	140,231	12,895	12,895	-	4,223	-	4,223
2036	137,153	12,665	12,665	-	3,876	-	3,876
2037	133,846	12,412	12,412	-	3,550	-	3,550
2038	130,396	12,178	12,178	-	3,255	-	3,255
2039	126,942	11,939	11,939	-	2,983	-	2,983
2040	123,491	11,746	11,746	-	2,743	-	2,743
2041	119,995	11,554	11,554	-	2,521	-	2,521
2042	116,452	11,377	11,377	-	2,320	-	2,320
2043	112,841	11,209	11,209	-	2,136	-	2,136
2044	109,150	11,036	11,036	-	1,966	-	1,966
2045	105,377	10,838	10,838	-	1,804	-	1,804
2046	101,545	10,610	10,610	-	1,651	-	1,651
2047	97,680	10,420	10,420	-	1,515	-	1,515
2048	93,740	10,255	10,255	-	1,394	-	1,394
2049	89,695	10,074	10,074	-	1,279	-	1,279
2050	85,554	9,865	9,865	-	1,171	-	1,171
2051	81,339	9,611	9,611	-	1,066	-	1,066
2052	77,091	9,275	9,275	-	961	-	961
2053	72,894	8,938	8,938	-	866	-	866
2054	68,751	8,550	8,550	-	774	-	774
2055	64,719	8,149	8,149	-	690	-	690
2056	60,821	7,750	7,750	-	613	-	613
2057	57,061	7,360	7,360	-	544	-	544
2058	53,442	6,980	6,980	-	482	-	482
2059	49,963	6,608	6,608	-	427	-	427
2060	46,625	6,247	6,247	-	377	-	377
2061	43,427	5,896	5,896	-	332	-	332
2062	40,369	5,555	5,555	-	293	-	293
2063	37,448	5,226	5,226	-	257	-	257
2064	34,664	4,908	4,908	-	226	-	226
2065	32,013	4,602	4,602	-	198	-	198
2066	29,494	4,307	4,307	-	173	-	173
2067	27,103	4,024	4,024	-	151	-	151
2068	24,837	3,753	3,753	-	132	-	132



## 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 Using Single Discount Rate of		
					Funded Payments at 7.00%	Unfunded Payments at 3.50%	7.00%
2069	\$ 22,694	\$ 3,492	\$ 3,492	\$ -	\$ 115	\$ -	\$ 115
2070	20,670	3,242	3,242	-	99	-	99
2071	18,764	3,002	3,002	-	86	-	86
2072	16,971	2,773	2,773	-	74	-	74
2073	15,291	2,553	2,553	-	64	-	64
2074	13,721	2,342	2,342	-	55	-	55
2075	12,258	2,141	2,141	-	47	-	47
2076	10,902	1,948	1,948	-	40	-	40
2077	9,650	1,764	1,764	-	34	-	34
2078	8,501	1,589	1,589	-	28	-	28
2079	7,452	1,424	1,424	-	24	-	24
2080	6,501	1,267	1,267	-	20	-	20
2081	5,646	1,119	1,119	-	16	-	16
2082	4,883	981	981	-	13	-	13
2083	4,210	853	853	-	11	-	11
2084	3,623	735	735	-	9	-	9
2085	3,116	627	627	-	7	-	7
2086	2,685	529	529	-	5	-	5
2087	2,326	442	442	-	4	-	4
2088	2,032	364	364	-	3	-	3
2089	1,797	296	296	-	3	-	3
2090	1,617	237	237	-	2	-	2
2091	1,485	187	187	-	1	-	1
2092	1,396	145	145	-	1	-	1
2093	1,344	110	110	-	1	-	1
2094	1,324	82	82	-	-	-	-
2095	1,332	60	60	-	-	-	-
2096	1,363	43	43	-	-	-	-
2097	1,414	30	30	-	-	-	-
2098	1,482	20	20	-	-	-	-
2099	1,565	13	13	-	-	-	-
2100	1,661	9	9	-	-	-	-
2101	1,768	5	5	-	-	-	-
2102	1,886	3	3	-	-	-	-
2103	2,015	2	2	-	-	-	-
2104	2,154	1	1	-	-	-	-
2105	2,303	1	1	-	-	-	-
2106	2,464	-	-	-	-	-	-
2107	2,636	-	-	-	-	-	-
2108	2,821	-	-	-	-	-	-
2109	3,018	-	-	-	-	-	-
2110	3,229	-	-	-	-	-	-
2111	3,455	-	-	-	-	-	-
2112	3,697	-	-	-	-	-	-
2113	3,956	-	-	-	-	-	-
2114	4,233	-	-	-	-	-	-
2115	4,529	-	-	-	-	-	-
2116	4,846	-	-	-	-	-	-
2117	5,185	-	-	-	-	-	-
2118	5,548	-	-	-	-	-	-



## Appendix F: Detailed Tabulations of Member Data

**Table F-1: The Number of Active Members Distributed by Age and Service as of December 31, 2018**

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	0	0	9	0	0	0	0	0	0	0	9
25 to 29	0	0	627	232	0	0	0	0	0	0	859
30 to 34	0	0	415	858	124	0	0	0	0	0	1,397
35 to 39	0	0	169	341	634	85	0	0	0	0	1,229
40 to 44	0	0	62	135	257	247	27	0	0	0	728
45 to 49	0	0	36	94	149	164	180	33	0	0	656
50 to 54	0	0	4	45	108	84	88	107	15	0	451
55 to 59	0	0	0	5	28	17	32	41	43	1	167
60 to 64	0	0	0	0	4	2	2	2	3	1	14
65 to 69	0	0	0	0	0	0	0	0	1	0	1
70 & Over	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1,322	1,710	1,304	599	329	183	62	2	5,511



## Appendix F: Detailed Tabulations of Member Data

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**Table F-2: The Number of Active Members Distributed by Age  
as of December 31, 2018**

Age	Number
24	9
25	46
26	149
27	140
28	241
29	283
30	314
31	313
32	287
33	235
34	248
35	273
36	267
37	247
38	220
39	222
40	163
41	168
42	138
43	128
44	131
45	129
46	110
47	119
48	154
49	144
50	122
51	96
52	84
53	79
54	70
55	58
56	35
57	35
58	27
59	12
60	9
61	2
62	2
63	1
67	1
Total	5,511



## Appendix F: Detailed Tabulations of Member Data

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**Table F-3: The Number of Active Members Distributed by Service as of December 31, 2018**

Service	Number
7	464
8	435
9	423
10	406
11	435
12	358
13	261
14	250
15	273
16	301
17	293
18	235
19	202
20	160
21	146
22	117
23	87
24	89
25	59
26	73
27	74
28	54
29	69
30	42
31	53
32	37
33	26
34	25
35	20
36	17
37	9
38	12
39	4
40	2
Total	5,511



## Appendix F: Detailed Tabulations of Member Data

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**Table F-4: The Number and Deferred Annual Retirement Pensions of Terminated Vested Members Distributed by Age as of December 31, 2018**

Age	Number	Pensions
27	1	\$ 2,520
28	4	10,080
29	3	7,560
30	4	10,080
31	5	12,600
32	5	12,600
33	5	12,600
34	7	17,640
35	2	5,040
36	2	3,780
37	2	4,284
38	9	16,380
39	6	8,820
40	18	24,318
41	20	25,830
42	36	49,896
43	51	71,820
44	56	79,758
45	77	112,140
46	89	129,654
47	122	185,850
48	152	232,848
49	155	244,188
50	178	283,878
51	199	327,978
52	218	368,172
53	219	360,612
54	280	460,404
55	276	450,702
56	316	542,556
57	315	544,572
58	296	510,930
59	307	522,900



## Appendix F: Detailed Tabulations of Member Data

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**Table F-4: The Number and Deferred Annual Retirement Pensions of Terminated Vested Members Distributed by Age as of December 31, 2018 (continued)**

Age	Number	Pensions
60	204	\$ 345,870
61	115	185,472
62	98	153,846
63	87	141,876
64	81	126,882
65	81	131,796
66	57	89,334
67	67	106,218
68	69	119,574
69	106	179,928
70	111	182,700
71	107	172,998
72	102	172,494
73	76	129,654
74	85	144,648
75	53	92,358
76	63	112,518
77	45	76,608
78	39	70,938
79	31	57,078
80	25	44,730
81	17	28,098
82	26	48,510
83	20	41,958
84	18	34,146
85	8	16,632
86	16	33,012
87	20	42,714
88	18	36,666
89	16	30,492
90	5	11,466
91	2	3,654
92	1	2,520
Total	5,304	\$ 8,820,378



## Appendix F: Detailed Tabulations of Member Data

**Table F-5: The Number and Annual Retirement Pensions of Retired Members Distributed by Age as of December 31, 2018**

Age	Number	Pensions
43	1	\$ 1,890
60	53	93,149
61	154	287,658
62	168	307,944
63	149	280,717
64	163	300,218
65	164	297,215
66	215	385,582
67	264	479,584
68	279	502,729
69	291	531,355
70	323	584,892
71	325	582,701
72	315	563,814
73	213	401,058
74	199	368,007
75	189	354,690
76	166	318,138
77	119	215,136
78	84	159,390
79	89	182,574
80	105	208,038
81	93	183,063
82	82	165,870
83	68	142,758
84	64	132,426
85	54	113,715
86	45	88,830
87	38	78,120
88	38	81,900
89	36	70,245
90	35	68,418
91	14	29,988
92	12	28,728
93	3	7,560
94	1	2,016
95	5	11,466
97	1	1,890
98	3	5,796
100	1	2,520
Total	4,621	\$ 8,621,788