

April 1, 2013

Mr. Sam Watts
Policy Development Analyst
State of North Carolina
Department of State Treasurer
Retirement Systems Division
325 North Salisbury Street
Raleigh, NC 27603-1385

Dear Mr. Watts:

Enclosed is the "Report on an Actuarial Valuation of the North Carolina Firemen's and Rescue Squad Workers' Pension Fund Prepared as of June 30, 2012."

If you have any questions concerning the report, please let us know.

Very truly yours,



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



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

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Enclosures

**REPORT ON THE ACTUARIAL VALUATION OF
THE NORTH CAROLINA FIREMEN'S AND
RESCUE SQUAD WORKERS' PENSION FUND
PREPARED AS OF JUNE 30, 2012**

April 1, 2013

Board of Trustees
North Carolina Firemen's and Rescue
Squad Workers' Pension Fund
Raleigh, North Carolina

Members of the Board:

The North Carolina Firemen's and Rescue Squad Workers' Pension Fund became effective as of January 1, 1982. It is a continuation of the North Carolina Firemen's Pension Fund, which became effective July 1, 1959. Contributions to provide the benefits under the Fund are made jointly by the members and by the State. The members' rate of contribution is fixed at \$10 per month, while the State's rate of contribution is to be determined annually on the basis of actuarial valuations, so that the total contributions of the members and the State, together with the interest earned on the investments of the Fund, will be sufficient to provide all benefits payable from the Fund.

An actuarial valuation of the Fund, prepared as of June 30, 2012, has now been completed and the results are presented in this report, together with our recommendations regarding contributions payable by the State.

The annual required contribution for the fiscal year ending June 30, 2014 is \$14,620,362.

The valuation has been prepared in accordance with the parameters of Statement Nos. 25 and 27 of the Governmental Accounting Standards Board (GASB). The annual required contribution (ARC) under GASB for the fiscal year ending 2014 is \$14,620,362 based on a twelve-year liquidation period of the unfunded accrued liability. The Fund has a Net Pension Obligation (NPO) of \$2,365,284.

The plan sponsor selected the assumptions used for the results in this report. I believe that these assumptions are reasonable and comply with the requirements of GASB Nos. 25 and 27. I prepared this report in accordance with the requirements of these standards.

The census data provided for use in these calculations included inconsistencies between Hire Date, Credited Service and Accumulated Member Contributions. We understand that the census data and proper administration of the receipt of member contributions, roster service, credited service and the indication of full-time firefighters vs. volunteer firefighters is currently under review. The potential impact of such a review has not been reflected in our valuation. However, the results of the review could lead to a significant difference in future valuation results.

The undersigned 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.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,



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



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

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**REPORT ON THE ACTUARIAL VALUATION OF THE
NORTH CAROLINA FIREMEN'S AND
RESCUE SQUAD WORKERS' PENSION FUND
PREPARED AS OF JUNE 30, 2012**

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. This report, prepared as of June 30, 2012, presents the results of the actuarial valuation of the Fund. The principal results of the valuation and a comparison with previous year's results are summarized below.

**TABLE I
SUMMARY OF PRINCIPAL RESULTS**

VALUATION DATE	6/30/2012	6/30/2011
	FIREMEN	
Number of active members included in valuation	37,518	36,471
Retired membership		
Number	10,759	10,408
Annual pensions	\$ 21,948,360	\$ 21,232,320
Number of deferred disabled members	142	147
Assets (including receivable contribution)		
Market related value	\$ 301,912,163	\$ 292,213,139
Market value	287,081,864	288,065,061
Unfunded accrued liability	\$ 64,252,589	\$ 62,902,341
Employer contributions		
Normal	\$ 5,670,846	\$ 5,631,487
Accrued liability	<u>8,350,083</u>	<u>7,826,149</u>
Total	\$ 14,020,929	\$ 13,457,636
	RESCUE SQUAD WORKERS	
Number of active members included in valuation	3,352	3,263
Retired membership		
Number	1,153	1,112
Annual pensions	\$ 2,352,120	\$ 2,268,480
Number of deferred disabled members	12	12
Assets (including receivable contribution)		
Market related value	\$ 36,972,924	\$ 35,770,915
Market value	35,143,522	35,289,129
Unfunded accrued liability	\$ 679,227	\$ 950,687
Employer contributions		
Normal	\$ 506,655	\$ 503,839
Accrued liability	<u>92,778</u>	<u>112,896</u>
Total	\$ 599,433	\$ 616,735

TABLE I (continued)

VALUATION DATE	6/30/2012	6/30/2011
	TOTAL	
Number of active members included in valuation	40,870	39,734
Retired membership		
Number	11,912	11,520
Annual pensions	\$ 24,300,480	\$ 23,500,800
Number of deferred disabled members	154	159
Assets (including receivable contribution)		
Market related value	\$ 338,885,087	\$ 327,984,054
Market value	322,225,386	323,354,190
Unfunded accrued liability	\$ 64,931,816	\$ 63,853,028
CONTRIBUTIONS FOR FISCAL YEAR ENDING	JUNE 30, 2014	JUNE 30, 2013
<u>Recommended Employer contributions</u>		
Normal	\$ 6,177,501	\$ 6,135,326
Accrued liability	<u>8,442,861</u>	<u>7,939,045</u>
Total	\$ 14,620,362	\$ 14,074,371
Impact of Legislative Changes	<u>N/A</u>	<u>0</u>
Final	\$ 14,620,362	\$ 14,074,371
<u>GASB 25/27</u>		
Annual required contribution (ARC) of employer		
Normal	\$ 6,177,501	\$ 6,135,326
Accrued liability	<u>8,442,861</u>	<u>7,939,045</u>
Total	\$ 14,620,362	\$ 14,074,371
Impact of Legislative Changes	<u>N/A</u>	<u>0</u>
Final	\$ N/A	\$ 14,074,371

2. The following table shows a reconciliation of the change in the annual required contribution computed to be \$14,074,371 based on the June 30, 2011 valuation and \$14,620,362 based on the June 30, 2012 valuation.

TABLE II
RECONCILIATION OF CHANGE IN ANNUAL REQUIRED CONTRIBUTION

Prior Year's Preliminary ARC (based on 6/30/11 valuation)	\$ 14,074,371
Impact of Legislative Changes	<u>0</u>
Prior Year's Final ARC	14,074,371
Change Due to Demographic Gain/Loss	(3,083)
Change Due to Investment Gain/Loss	550,306
Change Due to Contributions More Than ARC	<u>(1,232)</u>
Current Year's Preliminary ARC (based on 6/30/12 valuation)	\$ 14,620,362

3. Tables summarizing the membership of the Fund as of the valuation date are shown in Section II.
4. The valuation balance sheet showing the assets and liabilities of the current and previous valuation dates is provided in Section III.
5. An allocation of investments by category is provided in Section IV.
6. Contributions payable by the State are provided in Section V.
7. Comments on experience and actuarial gains during the valuation year are provided in Section VI.
8. Accounting information to be disclosed in the financial statements of the Fund and the employer is provided in Section VII.
9. Schedule A of this report presents the development of the actuarial value of assets.
10. Schedule B of this report presents the development of the amortization of the unfunded accrued liability.
11. Schedule C of this report outlines the full set of actuarial assumptions and methods employed.
12. Schedule D gives a summary of the benefit and contribution provisions of the Fund.
13. Schedule E provides detailed tabulations of the membership of the Fund as of the valuation date.

SECTION II - MEMBERSHIP DATA

Data regarding the membership of the Fund for use as a basis for the valuation were furnished by the Retirement Fund office. The following table summarizes the membership of the Fund as of June 30, 2012 upon which the valuation was based. Detailed tabulations of the data are given in Schedule E.

TABLE III
THE NUMBER OF ACTIVE MEMBERS
AS OF JUNE 30, 2012

GROUP	NUMBER	AVERAGE AGE	AVERAGE SERVICE
Firemen*	22,098	39.5	11.7
Volunteer Firemen*	15,420	39.4	10.7
Rescue Squad Workers	<u>3,352</u>	<u>42.8</u>	<u>11.9</u>
Total	40,870	39.7	11.3

*The indication of full-time firefighters vs. volunteer firefighters is currently under review.

TABLE IV

**THE NUMBER AND ANNUAL PENSIONS
OF RETIRED MEMBERS AS OF JUNE 30, 2012**

GROUP	NUMBER	AVERAGE AGE	ANNUAL PENSIONS
Firemen	10,759	68.1	\$ 21,948,360
Rescue Squad Workers	<u>1,153</u>	<u>68.5</u>	<u>2,352,120</u>
Total	11,912	68.1	\$ 24,300,480

TABLE V

**THE NUMBER AND ANNUAL PENSIONS OF DISABLED MEMBERS
ELIGIBLE FOR DEFERRED PENSION AS OF JUNE 30, 2012**

GROUP	NUMBER	AVERAGE AGE	ANNUAL PENSIONS
Firemen	142	50.5	\$ 289,680
Rescue Squad Workers	<u>12</u>	<u>52.8</u>	<u>24,480</u>
Total	154	50.7	\$ 314,160

SECTION III - VALUATION BALANCE SHEET

The following valuation balance sheets show the assets and liabilities of the Pension Fund as of the current valuation date of June 30, 2012 and, for comparison purposes, as of the previous valuation date of June 30, 2011. The development of the actuarial value of assets is presented in Schedule A.

TABLE VI
VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
NORTH CAROLINA FIREMEN'S AND
RESCUE SQUAD WORKERS' PENSION FUND

FIREMEN

ASSETS	June 30, 2012	June 30, 2011
Current assets:		
Annuity Savings Fund	\$ 35,550,363	\$ 34,647,854
Pension Accumulation Fund	<u>266,361,800</u>	<u>257,565,285</u>
Total current assets	\$ 301,912,163*	\$ 292,213,139
Future member contributions to Annuity Savings Fund	\$ 27,682,530	\$ 26,745,594
Prospective contributions to Pension Accumulation Fund:		
Normal contributions	\$ 38,760,406	\$ 38,470,763
Accrued liability contributions	<u>64,252,589</u>	<u>62,902,341</u>
Total prospective contributions	\$ 103,012,995	\$ 101,373,104
Total Assets	<u>\$ 432,607,688</u>	<u>\$ 420,331,837</u>
LIABILITIES		
Annuity Savings Fund:		
Past member contributions	\$ 35,550,363	\$ 34,647,854
Future member contributions	<u>27,682,530</u>	<u>26,745,594</u>
Total contributions to Annuity Savings Fund	\$ 63,232,893	\$ 61,393,448
Pension Accumulation Fund:		
Benefits currently in payment	\$ 186,449,418	\$ 180,320,651
Benefits to be paid to current active members	<u>182,925,377</u>	<u>178,617,738</u>
Total benefits payable from Pension Accumulation Fund	\$ 369,374,795	\$ 358,938,389
Total Liabilities	<u>\$ 432,607,688</u>	<u>\$ 420,331,837</u>

* Includes employer contributions receivable of \$4,084,868 as appropriated for fiscal year ending 6/30/2012 but received after such date. The amount was included in the Plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

TABLE VI (continued)

VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
NORTH CAROLINA FIREMEN'S AND
RESCUE SQUAD WORKERS' PENSION FUND

RESCUE SQUAD WORKERS

ASSETS	June 30, 2012	June 30, 2011
Current assets:		
Annuity Savings Fund	\$ 3,043,832	\$ 3,076,108
Pension Accumulation Fund	<u>33,929,092</u>	<u>32,694,807</u>
Total current assets	\$ 36,972,924*	\$ 35,770,915
Future member contributions to Annuity Savings Fund	\$ 2,303,196	\$ 2,210,015
Prospective contributions to Pension Accumulation Fund:		
Normal contributions	\$ 3,163,216	\$ 3,140,210
Accrued liability contributions	<u>679,227</u>	<u>950,687</u>
Total prospective contributions	\$ 3,842,443	\$ 4,090,897
Total Assets	<u>\$ 43,118,563</u>	<u>\$ 42,071,827</u>
LIABILITIES		
Annuity Savings Fund:		
Past member contributions	\$ 3,043,832	\$ 3,076,108
Future member contributions	<u>2,303,196</u>	<u>2,210,015</u>
Total contributions to Annuity Savings Fund	\$ 5,347,028	\$ 5,286,123
Pension Accumulation Fund:		
Benefits currently in payment	\$ 19,893,990	\$ 19,182,497
Benefits to be paid to current active members	<u>17,877,545</u>	<u>17,603,207</u>
Total benefits payable from Pension Accumulation Fund	\$ 37,771,535	\$ 36,785,704
Total Liabilities	<u>\$ 43,118,563</u>	<u>\$ 42,071,827</u>

* Includes employer contributions receivable of \$233,174 as appropriated for fiscal year ending 6/30/2012 but received after such date. The amount was included in the Plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

TABLE VI (continued)

VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
NORTH CAROLINA FIREMEN'S AND
RESCUE SQUAD WORKERS' PENSION FUND

TOTAL

ASSETS	June 30, 2012	June 30, 2011
Current assets:		
Annuity Savings Fund	\$ 38,594,195	\$ 37,723,962
Pension Accumulation Fund	<u>300,290,892</u>	<u>290,260,092</u>
Total current assets	\$ 338,885,087*	\$ 327,984,054
Future member contributions to Annuity Savings Fund	\$ 29,985,726	\$ 28,955,609
Prospective contributions to Pension Accumulation Fund:		
Normal contributions	\$ 41,923,622	\$ 41,610,973
Accrued liability contributions	<u>64,931,816</u>	<u>63,853,028</u>
Total prospective contributions	\$ 106,855,438	\$ 105,464,001
Total Assets	<u>\$ 475,726,251</u>	<u>\$ 462,403,664</u>
LIABILITIES		
Annuity Savings Fund:		
Past member contributions	\$ 38,594,195	\$ 37,723,962
Future member contributions	<u>29,985,726</u>	<u>28,955,609</u>
Total contributions to Annuity Savings Fund	\$ 68,579,921	\$ 66,679,571
Pension Accumulation Fund:		
Benefits currently in payment	\$ 206,343,408	\$ 199,503,148
Benefits to be paid to current active members	<u>200,802,922</u>	<u>196,220,945</u>
Total benefits payable from Pension Accumulation Fund	\$ 407,146,330	\$ 395,724,093
Total Liabilities	<u>\$ 475,726,251</u>	<u>\$ 462,403,664</u>

* Includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012 but received after such date. The amount was included in the plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

The valuation balance sheet gives the following information with respect to the funds of the system as of June 30, 2012.

Annuity Savings Fund

The Annuity Savings Fund is the fund to which are credited contributions made by members. When a member retires, the amount of his accumulated contributions is transferred from the Annuity Savings Fund to the Pension Accumulation Fund.

The assets credited to the Annuity Savings Fund on account of Firemen on June 30, 2012, which represent the accumulated contributions of members to that date, amounted to \$35,550,363. The balance sheet also shows that the future contributions by members have a present value of \$27,682,530. The present value of both past and future contributions of members is therefore equal to \$63,232,893. The liabilities of this fund are also shown to be equal to \$63,232,893.

The assets credited to the Annuity Savings Fund on account of Rescue Squad Workers on June 30, 2012 amounted to \$3,043,832. The balance sheet also shows that the future contributions by members have a present value of \$2,303,196. The present value of both past and future contributions of members is therefore equal to \$5,347,028. The liabilities of this fund are also shown to be equal to \$5,347,028.

Pension Accumulation Fund

The Pension Accumulation Fund is the fund to which the contributions made by the State are credited and from which are paid all benefits on account of pensioners.

The current assets creditable to the Pension Accumulation Fund on account of Firemen on June 30, 2012 amounted to \$266,361,800. The liabilities on account of active members amounted to \$182,925,377. In addition, the balance sheet indicates liabilities of \$186,449,418 on account of all benefits payable to pensioners as of June 30, 2012. The total liabilities of the Pension Accumulation Fund for Firemen, therefore, amounted to \$369,374,795. The difference between these liabilities and the current assets credited to this Fund is \$103,012,995 which represents the present value of future contributions to be made by the State. Of this amount, \$38,760,406 represents the present value of prospective normal contributions by the State, and the balance of \$64,252,589 represents the present value of prospective accrued liability contributions.

The current assets creditable to the Pension Accumulation Fund on account of Rescue Squad Workers on June 30, 2012 amounted to \$33,929,092. The liabilities on account of active members amounted to \$17,877,545. In addition, the balance sheet indicates liabilities of \$19,893,990 on account of all benefits payable to pensioners as of June 30, 2012. The total liabilities of the Pension Accumulation Fund for Rescue Squad Workers, therefore, amounted to \$37,771,535. The difference between these liabilities and the current assets credited to this Fund is \$3,842,443 which represents the present value of future contributions to be made by the State. Of this amount, \$3,163,216 represents the present value of prospective normal contributions by the State, and the balance of \$679,227 represents the present value of prospective accrued liability contributions.

SECTION IV – ASSET ALLOCATION

The following table shows an allocation of investments by category for the Annuity Savings Fund and Pension Accumulation Fund as of June 30, 2012.

TABLE VII

**ALLOCATION OF INVESTMENTS BY CATEGORY
FOR THE ANNUITY SAVINGS FUND AND
PENSION ACCUMULATION FUND AS OF JUNE 30, 2012**

Cash and Receivables	1.6%
Fixed Income (LTIF)	36.4
Public Equity	42.3
Other*	<u>19.7</u>
Total	100.0%

* Real Estate, Alternatives, Inflation and Credit.

SECTION V - CONTRIBUTIONS PAYABLE BY THE STATE

The normal contribution covers the State's share of the cost of benefits based on current service. The valuation indicates that the annual normal contribution payable by the State is equal to \$151.15 multiplied by the number of active members. Based on 37,518 active members included in the valuation, the normal contribution for Firemen is \$5,670,846. Based on 3,352 active members included in the valuation, the normal contribution for Rescue Squad Workers is \$506,655. The valuation also indicated that the annual accrued liability contribution per active member is \$206.58.

The accrued liability is amortized over a period of years through an annual accrued liability contribution. Based on the amortization schedule for the unfunded actuarial accrued liability shown in Schedule B, the annual accrued liability contributions are \$8,350,083 for Firemen and \$92,778 for Rescue Squad Workers. The total contributions on this basis are \$14,020,929 for Firemen and \$599,433 for Rescue Squad Workers. The following table shows the annual contributions payable by the State.

TABLE VIII
ANNUAL CONTRIBUTIONS PAYABLE BY THE STATE

CONTRIBUTION	FIREMEN	RESCUE SQUAD WORKERS	TOTAL
Normal	\$ 5,670,846	\$ 506,655	\$ 6,177,501
Accrued Liability	<u>8,350,083</u>	<u>92,778</u>	<u>8,442,861</u>
Total	\$ 14,020,929	\$ 599,433	\$ 14,620,362

The annual required contribution for the fiscal year ending June 30, 2014 is \$14,620,362.

The following table shows the annual contribution payable per active member.

TABLE IX
ANNUAL CONTRIBUTION PAYABLE PER ACTIVE MEMBER

CONTRIBUTION	RATE
State	
Normal	\$ 151.15
Accrued Liability	<u>206.58</u>
Total	\$ 357.73
Member*	<u>120.00</u>
Grand Total	\$ 477.73

* Member rate is payable until member has contributed for 20 years.

SECTION VI - COMMENTS ON EXPERIENCE AND GAINS

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

TABLE X

**RECONCILIATION OF CHANGE IN UNFUNDED ACCRUED LIABILITY
SINCE THE PRIOR VALUATION
(IN MILLIONS)**

Unfunded accrued liability as of 6/30/11	\$ 63.9
Normal cost	8.9
Reduction due to actual contributions and member contributions	(17.2)
Interest on unfunded accrued liability, normal cost and contributions	4.7
Asset (gain)/loss	4.2
Accrued liability (gain)/loss	<u>0.4</u>
Unfunded accrued liability as of 6/30/12	\$ 64.9

SECTION VII - ACCOUNTING INFORMATION

- Statement Nos. 25 and 27 of the Governmental Accounting Standards Board (GASB) set forth certain items of information to be disclosed in the financial statements of the Fund and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED PARTICIPANTS
AS OF JUNE 30, 2012**

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	11,912
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	154
Active Participants	<u>40,870</u>
Total	52,936

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/07	\$305,869,434	\$322,453,973	\$16,584,539	94.9%	N/A	N/A
6/30/08	316,973,296	339,022,147	22,048,851	93.5	N/A	N/A
6/30/09	315,697,259	351,324,586	35,627,327	89.9	N/A	N/A
6/30/10	318,272,616	370,235,987	51,963,371	86.0	N/A	N/A
6/30/11	327,984,054	391,837,082	63,853,028	83.7	N/A	N/A
6/30/12	338,885,087*	403,816,903	64,931,816	83.9	N/A	N/A

- * Includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012 but received after such date. This amount was included in the plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

3. Following is a reconciliation of the preliminary employer annual required contribution rate to the final employer annual required contribution for fiscal year ending June 30, 2012.

	Fiscal Year Ending June 30, 2012
Preliminary Annual Required Contribution	
Normal	\$ 7,522,852
Accrued Liability	<u>6,865,854</u>
Total	\$ 14,388,706
Impact of Legislative Changes	<u>0</u>
Final Annual Required Contribution	\$ 14,388,706

4. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2012.

Annual Pension Cost and Net Pension Obligation for Fiscal Year Ending 6/30/2012

(a)	Employer annual required contribution	\$ 14,388,706
(b)	Interest on net pension obligation	183,051
(c)	Adjustment to annual required contribution	<u>(333,605)</u>
(d)	Annual pension cost: (a) + (b) + (c)	\$ 14,238,152
(e)	Employer contributions made for fiscal year ending 6/30/2012*	<u>14,397,713</u>
(f)	Increase (decrease) in net pension obligation: (d) – (e)	\$ (159,561)
(g)	Net pension obligation beginning of fiscal year	<u>2,524,845</u>
(h)	Net pension obligation end of fiscal year: (f) + (g)	\$ 2,365,284

* Includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012 but received after such date. This amount was included in the plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

TREND INFORMATION

<u>Year Ending</u>	<u>Annual Pension Cost (APC)</u>	<u>Percentage of APC Contributed</u>	<u>Net Pension Obligation</u>
June 30, 2010	\$ 10,035,296	100%	\$ 429,444
June 30, 2011	12,205,072	83	2,524,845
June 30, 2012	14,238,152	101	2,365,284

5. The annual required contribution (ARC) of the employer, determined in accordance with the parameters of GASB 25/27, is shown below. The accrued liability rate is based on amortization schedule below.

**2013/2014 FISCAL YEAR
ANNUAL REQUIRED CONTRIBUTION (ARC)
BASED ON THE VALUATION AS OF JUNE 30, 2012**

ANNUAL REQUIRED CONTRIBUTION (ARC)	AMOUNT
Normal	\$ 6,177,501
Accrued liability	<u>8,442,861</u>
Total	\$ 14,620,362

**AMORTIZATION SCHEDULE
FOR UNFUNDED ACTUARIAL ACCRUED LIABILITY**

<u>DATE ESTABLISHED</u>	<u>OUTSTANDING BALANCES</u>		<u>ANNUAL PAYMENT</u>
	<u>INCEPTION</u>	<u>JUNE 30, 2012</u>	
June 30, 2010	\$ 51,963,371	\$ 52,407,563	\$ 6,865,854
June 30, 2011	\$ 8,122,313	\$ 8,711,181	\$ 1,073,191
June 30, 2012	\$ 3,813,072	<u>\$ 3,813,072</u>	<u>\$ 503,816</u>
Total		\$ 64,931,816	\$ 8,442,861

6. Additional information as of June 30, 2012 follows.

Valuation date	6/30/2012
Actuarial cost method	Entry age
Amortization method	Level dollar closed
Amortization period	12 years
Asset valuation method	20% of market value plus 80% of expected actuarial value (not greater than 120% of market value and not less than 80% of market value) plus receivable employer contributions
Actuarial assumptions:	
Investment rate of return*	7.25%
Projected salary increases	N/A
*Includes inflation at	3.50%
Cost-of-living adjustments	N/A

7. The census data provided for use in these calculations included inconsistencies between Hire Date, Credited Service and Accumulated Member Contributions. We understand that the census data and proper administration of the receipt of member contributions, roster service and credited service is currently under review. The potential impact of such a review has not been reflected in our valuation. However, the results of the review could lead to a significant difference in future valuation results.

SCHEDULE A**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
FOR THE YEAR ENDING JUNE 30, 2012**

	<u>Firemen</u>	<u>Rescue Squad Workers</u>	<u>Total</u>
1. Actuarial Value of Assets as of June 30, 2011:	\$ 292,213,139	\$ 35,770,915	\$ 327,984,054
2. 2011/2012 Net Cash Flow			
a. Contributions	11,503,330	1,349,919	12,853,249
b. Disbursements	<u>22,952,036</u>	<u>2,476,293</u>	<u>25,428,329</u>
c. Net Cash Flow: (a) - (b)	(11,448,706)	(1,126,374)	(12,575,080)
3. Expected Investment Return: [(1) x .0725] + [(2)c x .03625]	20,770,437	2,552,560	23,322,997
4. Expected Actuarial Value of Assets as of June 30, 2012: (1) + (2)c + (3)	301,534,870	37,197,101	338,731,971
5. Market Value of Assets as of June 30, 2012:	282,996,996	34,910,348	317,907,344
6. Excess of Market Value over Expected Actuarial Value of Assets: (5) - (4)	(18,537,874)	(2,286,753)	(20,824,627)
7. 20% Adjustment towards Market Value: (6) * .20	(3,707,575)	(457,351)	(4,164,926)
8. Preliminary Actuarial Value of Assets as of June 30, 2012: (4) + (7)	\$ 297,827,295	\$ 36,739,750	\$ 334,567,045
9. Receivable Employer Contributions	\$ 4,084,868	\$ 233,174	\$ 4,318,042
10. Final Actuarial Value of Assets as of June 30, 2012: [(8) not less than 80% of (5) and not greater than 120% of (5)] + (9)	\$ 301,912,163	\$ 36,972,924	\$ 338,885,087*
11. Rate of investment return on actuarial value	5.96%	5.95%	5.96%
12. Rate of investment return on market value	2.26%	2.15%	2.25%

* Includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012 but received after such date. The amount was included in the Plan's financial statements in the State's CAFR for fiscal year end 6/30/2012.

SCHEDULE B**AMORTIZATION SCHEDULE FOR
UNFUNDED ACTUARIAL ACCRUED LIABILITY****FIREMEN**

DATE ESTABLISHED	OUTSTANDING BALANCES		ANNUAL PAYMENT
	INCEPTION	JUNE 30, 2012	
June 30, 2010	\$ 50,635,822	\$ 51,068,666	\$ 6,690,447
June 30, 2011	\$ 8,595,421	\$ 9,218,590	\$ 1,135,702
June 30, 2012	\$ 3,965,333	<u>\$ 3,965,333</u>	<u>\$ 523,934</u>
Total		\$ 64,252,589	\$ 8,350,083

RESCUE SQUAD WORKERS

DATE ESTABLISHED	OUTSTANDING BALANCES		ANNUAL PAYMENT
	INCEPTION	JUNE 30, 2012	
June 30, 2010	\$ 1,327,549	\$ 1,338,897	\$ 175,407
June 30, 2011	\$ (473,108)	\$ (507,409)	\$ (62,511)
June 30, 2012	\$ (152,261)	<u>\$ (152,261)</u>	<u>\$ (20,118)</u>
Total		\$ 679,227	\$ 92,778

TOTAL

DATE ESTABLISHED	OUTSTANDING BALANCES		ANNUAL PAYMENT
	INCEPTION	JUNE 30, 2012	
June 30, 2010	\$ 51,963,371	\$ 52,407,563	\$ 6,865,854
June 30, 2011	\$ 8,122,313	\$ 8,711,181	\$ 1,073,191
June 30, 2012	\$ 3,813,072	<u>\$ 3,813,072</u>	<u>\$ 503,816</u>
Total		\$ 64,931,816	\$ 8,442,861

SCHEDULE C**OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

INTEREST RATE: 7.25% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal and vesting, retirement, death and disability are as follows:

<u>Service</u>	<u>Withdrawal</u>		<u>Age</u>	<u>Retirement*</u>	
	<u>Firefighters</u>	<u>Rescue Squad Workers</u>		<u>Firefighters and Rescue Squad Workers</u>	<u>Volunteer Firefighters</u>
0	.030	.05	25		
1	.030	.05	30		
2	.030	.05	35		
3	.030	.05	40		
4	.030	.05	45		
5+	.015	.02	50		
			55	0.75	1.00
			60	0.75	1.00
			65	1.00	1.00
			69	1.00	1.00

* These rates apply only after 20 years of membership in the system.

<u>Age</u>	<u>Base Mortality*</u>		<u>Disability</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25	.0004	.0002	.0016	.0016
30	.0006	.0004	.0030	.0030
35	.0009	.0006	.0050	.0050
40	.0012	.0009	.0068	.0068
45	.0017	.0013	.0083	.0083
50	.0024	.0020	.0120	.0120
55	.0036	.0030	.0150	.0150
60	.0059	.0047	.0200	.0200
65	.0086	.0066		
69	.0109	.0083		

* Base mortality rates as of December 31, 2003.

Representative values of the assumed post-retirement mortality rates as of December 31, 2003 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement

<u>Age</u>	<u>Male Healthy Retirees</u>	<u>Female Healthy Retirees</u>	<u>Male Beneficiaries of Deceased Members</u>	<u>Female Beneficiaries of Deceased Members</u>	<u>Male Disabled Retirees</u>	<u>Female Disabled Retirees</u>
55	.0064	.0044	.0061	.0044	.0277	.0176
60	.0099	.0077	.0090	.0077	.0342	.0229
65	.0165	.0125	.0149	.0125	.0407	.0296
70	.0273	.0207	.0246	.0207	.0483	.0401
75	.0469	.0341	.0422	.0341	.0596	.0558
80	.0805	.0563	.0720	.0563	.0775	.0771

MORTALITY IMPROVEMENTS: Representative values of the assumed mortality improvement rates (applied to pre-retirement mortality rates for active members and post-retirement mortality rates for healthy retirees and beneficiaries of deceased members after such tables have been set back or set forward) are as follows:

<u>Age</u>	<u>Male Projection Scale</u>	<u>Female Projection Scale</u>
25	0.010	0.014
30	0.005	0.010
35	0.005	0.011
40	0.008	0.015
45	0.013	0.016
50	0.018	0.017
55	0.019	0.008
60	0.016	0.005
65	0.014	0.005
70	0.015	0.005
75	0.014	0.008
80	0.010	0.007

DEATHS AFTER RETIREMENT (NON-DISABLED): According to the RP-2000 Mortality tables for retirees. These tables are set forward two years for all employees. These tables are also set forward one year for male beneficiaries of deceased members and set forward two years for female beneficiaries of deceased members. The base retiree RP-2000 tables have no rates prior to age 50. The active employee rates of RP-2000 are used for ages less than 50 prior to any adjustments for setbacks.

DEATH AFTER DISABILITY: According to the RP-2000 Mortality tables for disabled annuitants set back six years for males and set forward one year for females.

DEATHS PRIOR TO RETIREMENT: According to the RP-2000 Mortality tables for active employees. These tables are set forward two years for all employees. The base RP-2000 tables for active employees have no rates after age 70. A blend of active rates and retired rates are used from ages 70 to 80 prior to any set back and adjustments.

MORTALITY PROJECTION (NON-DISABLED): All mortality rates are projected from December 31, 2003 using Scale AA.

TIMING OF ASSUMPTIONS: All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur January 1 of each year.

FUTURE EXPENSES: Equal to prior year actual administrative expenses.

VALUATION METHOD: Entry age normal cost method. Entry age is established on an individual basis. Gains and losses are reflected in the unfunded accrued liability.

ASSET VALUATION METHOD: Actuarial value, as developed in Schedule A. The actuarial value of assets recognizes a portion of the difference between the market value of assets (excluding receivable employer contributions) and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The actuarial value of assets is not allowed to be greater than 120% of the market value of assets or less than 80% of the market value of assets. Receivable employer contributions are then added to the preliminary actuarial value of assets.

CHANGES SINCE PRIOR VALUATION: None.

SCHEDULE D**SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS**

All regular and volunteer firemen of the State of North Carolina whose qualifications are certified by their respective Boards of County Commissioners are eligible to be members of the Fund. All rescue squad workers who are eligible for membership in the North Carolina Association of Rescue Squads, Inc. are eligible to be members of the Fund. Credit for prior service (that is, service rendered prior to July 1, 1959) is granted to firemen who were eligible on July 1, 1959 and became members on or before June 30, 1961. Credit may also be given for certain special purchased service.

BENEFITS**Service Retirement Pension**

Condition for Pension

A member who retires after he has attained age 55 and has credit for 20 years of service as a fireman or rescue squad worker in North Carolina is entitled to a monthly pension.

Amount of Pension

The amount of the pension is equal to \$170 per month.

Deferred Early Retirement Pension

Condition for Pension

A member whose service is terminated after he has credit for 20 years of service as a fireman or rescue squad worker in North Carolina but before he has attained age 55 is eligible to receive a deferred retirement pension, starting at age 55, provided he continues to make regular contributions until age 55 or until he has contributed for a total of 20 years, whichever event occurs earlier. Any member who is totally and permanently disabled while in the discharge of his official duties and leaves service as a result of such disability is eligible for a deferred retirement pension commencing at age 55 without continuing to make contributions. Any member who becomes totally and permanently disabled for any cause, other than line of duty, after 10 years of credited service under the Pension Fund may continue to make monthly contributions until he has paid \$2,400 into the Fund and receive a pension upon attainment of age 55.

Amount of Pension	The deferred pension is \$170 per month.
Return of Contributions	<p>Upon the death or withdrawal of a member prior to retirement, his aggregate contributions are refunded in a lump sum.</p> <p>Upon the death of a retired member, the excess, if any, of his aggregate contributions over the total of the pension payments he has received is refunded.</p>
CONTRIBUTIONS	
By Members	Each member contributes \$10 per month until retirement or until he has contributed for a total of 20 years, whichever event occurs earlier.
By State	The State makes annual contributions sufficient, with the members' contributions, to meet the cost of the benefits under the Fund.
Changes Since Prior Valuation	None.

SCHEDULE E**TABLE 1**

**THE NUMBER OF ACTIVE MEMBERS
DISTRIBUTED BY AGE AND SERVICE
AS OF JUNE 30, 2012**

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	583	3,190	269	0	0	0	0	0	0	0	4,042
25 to 29	342	2,892	1,581	162	0	0	0	0	0	0	4,977
30 to 34	246	2,401	1,698	1,030	90	0	0	0	0	0	5,465
35 to 39	198	1,949	1,509	1,218	820	97	0	0	0	0	5,791
40 to 44	150	1,731	1,416	1,129	981	823	90	0	0	0	6,320
45 to 49	95	1,155	978	914	772	1,106	519	41	0	0	5,580
50 to 54	42	749	676	600	628	1,172	765	335	24	0	4,991
55 to 59	33	403	371	353	386	272	197	73	27	0	2,115
60 to 64	12	223	187	162	177	62	31	14	9	0	877
65 to 69	11	124	84	72	77	34	3	7	0	5	417
70 & up	6	90	86	60	44	6	0	3	0	0	295
Total	1,718	14,907	8,855	5,700	3,975	3,572	1,605	473	60	5	40,870

SCHEDULE E**TABLE 2****THE NUMBER OF ACTIVE MEMBERS
DISTRIBUTED BY AGE
AS OF JUNE 30, 2012**

Age	Firemen	Rescue Squad Workers
16	9	0
17	28	0
18	53	2
19	116	1
20	270	4
21	421	12
22	573	28
23	669	39
24	839	42
25	900	39
26	885	40
27	908	55
28	931	68
29	948	69
30	999	72
31	1,028	81
32	1,025	67
33	1,029	62
34	1,021	77
35	994	80
36	1,013	93
37	1,044	105
38	1,009	105
39	1,102	92
40	1,126	102
41	1,106	116
42	1,186	126
43	1,219	92
44	1,143	104
45	1,120	109
46	1,055	99
47	1,037	94
48	981	98
49	1,055	101
50	970	90
51	984	84
52	955	107
53	877	107
54	869	92
55	837	78

SCHEDULE E**TABLE 2****THE NUMBER OF ACTIVE MEMBERS
DISTRIBUTED BY AGE
AS OF JUNE 30, 2012**

CONTINUED

Age	Firemen	Rescue Squad Workers
56	631	101
57	370	52
58	305	49
59	284	47
60	243	33
61	181	40
62	164	33
63	143	25
64	147	20
65	102	22
66	105	21
67	73	16
68	61	7
69	56	13
70	55	10
71	47	5
72	40	8
73	26	4
74	31	3
75	24	2
76	15	2
77	17	2
78	14	2
79	9	0
80	7	0
81	8	1
82	5	0
83	4	0
84	3	0
85	14	2
Total	37,518	3,352

SCHEDULE E**TABLE 3**

**THE NUMBER OF ACTIVE MEMBERS
DISTRIBUTED BY SERVICE
AS OF JUNE 30, 2012**

Years of Service	Firemen	Rescue Squad Workers
0	1,577	141
1	4,953	360
2	3,505	249
3	2,698	197
4	2,719	226
5	2,075	207
6	1,764	199
7	1,574	161
8	1,332	142
9	1,250	151
10	1,214	109
11	1,162	93
12	1,044	88
13	894	103
14	907	87
15	802	85
16	698	66
17	653	60
18	676	88
19	776	70
20	747	60
21	821	60
22	668	48
23	572	44
24	511	41
25	507	44
26	349	32
27	264	26
28	195	19
29	141	28
30	136	17
31	116	23
32	74	7
33	49	6
34	40	5
35	19	5
36	15	3
37	10	0
38	6	1
39	1	0
40	0	0
41	1	0
42	1	0
43	0	1
44	1	0
45	1	0
Total	37,518	3,352

SCHEDULE E**TABLE 4****THE NUMBER AND ANNUAL PENSIONS OF
RETIRED MEMBERS DISTRIBUTED BY AGE
AS OF JUNE 30, 2012**

Age	Number	Firemen		Rescue Squad Workers	
		Number	Amount	Number	Amount
47	1		\$ 2,040		
53	1		2,040		
55	150		306,000	11	\$ 22,440
56	409		834,360	46	93,840
57	465		948,600	51	104,040
58	509		1,038,360	58	118,320
59	481		981,240	44	89,760
60	526		1,073,040	42	85,680
61	496		1,011,840	57	116,280
62	480		979,200	48	97,920
63	464		946,560	50	102,000
64	461		940,440	43	87,720
65	522		1,064,880	50	102,000
66	433		883,320	47	95,880
67	385		785,400	34	69,360
68	403		822,120	36	73,440
69	424		864,960	46	93,840
70	385		785,400	47	95,880
71	312		636,480	29	59,160
72	321		654,840	44	89,760
73	310		632,400	41	83,640
74	270		550,800	28	57,120
75	237		483,480	31	63,240
76	238		485,520	36	73,440
77	269		548,760	19	38,760
78	221		450,840	37	75,480
79	203		414,120	23	46,920
80	188		383,520	23	46,920
81	168		342,720	24	48,960
82	153		312,120	15	30,600
83	144		293,760	19	38,760
84	118		240,720	15	30,600
85	124		252,960	7	14,280
86	110		224,400	14	28,560
87	100		204,000	14	28,560
88	82		167,280	5	10,200
89	52		106,080	7	14,280
90	37		75,480	1	2,040
91	39		79,560	4	8,160
92	24		48,960	2	4,080
93	15		30,600	2	4,080
94	14		28,560	2	4,080
95	8		16,320		
96	3		6,120	1	2,040
97	2		4,080		
98	1		2,040		
99					
100+	1		2,040		
Total	10,759	\$	21,948,360	1,153	\$ 2,352,120

SCHEDULE E**TABLE 5**

**THE NUMBER AND ANNUAL PENSIONS OF
DISABLED MEMBERS ELIGIBLE FOR DEFERRED PENSION
DISTRIBUTED BY AGE AS OF JUNE 30, 2012**

Age	Firemen		Rescue Squad Workers	
	Number	Amount	Number	Amount
27	1	\$ 2,040		
32	1	2,040		
33				
34	1	2,040		
35				
36	1	2,040		
37	3	6,120		
38				
39				
40	1	2,040		
41	2	4,080		
42	4	8,160	1	\$ 2,040
43	2	4,080	1	2,040
44	5	10,200		
45	5	10,200		
46	6	12,240		
47	6	12,240		
48	9	18,360		
49	13	26,520		
50	6	12,240	2	4,080
51	9	18,360	1	2,040
52	11	22,440		
53	17	34,680	2	4,080
54	10	20,400	1	2,040
55	4	8,160		
56	3	6,120	1	2,040
57	3	6,120		
58	3	6,120	2	4,080
59	7	14,280		
60	3	6,120		
61	2	4,080		
62	1	2,040		
63	1	2,040		
64				
65			1	2,040
66				
67				
68	1	2,040		
69	1	2,040		
Total	142	\$ 289,680	12	\$ 24,480