

**NEW HAMPSHIRE RETIREMENT SYSTEM**  
**CAFR SCHEDULES AND GASB STATEMENT NO. 67 PLAN**  
**REPORTING AND ACCOUNTING SCHEDULES**  
**JUNE 30, 2016**

October 28, 2016

Board of Trustees  
New Hampshire Retirement System  
54 Regional Drive  
Concord, New Hampshire 03301-8509

Attention: Mr. George Lagos

Dear Board Members:

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. This report should not be relied on for any purpose other than the purposes described below.

The purposes of this report are:

- To provide information in connection with Governmental Accounting Standards Board (GASB) Statement No. 67 “Financial Reporting for Pension Plans” as of June 30, 2016.
- To provide supporting schedules for the Comprehensive Annual Financial Report for the System’s use in the Actuarial Section, the Statistical Section, Notes to the Financial Statements, and Required Supplementary Information.

The report was based upon information, furnished by New Hampshire Retirement System (NHRS) staff, concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries as of June 30, 2016. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the data provided by NHRS. GRS is not responsible for unauthorized use of this report.

We prepared the following supporting schedules for the Comprehensive Annual Financial Report for the System’s use in the Actuarial Section, the Statistical Section, Notes to the Financial Statements and Required Supplementary Information:

- Summary of Actuarial Assumptions and Methods
  - Percent Retiring Within Next Year
  - Probabilities of Becoming Disabled Within Next Year
  - Percent Separating Within Next Year
  - Individual Employee Pay Increases
- Retirees and Beneficiaries Age Distribution
- Active Members by Valuation Division
- Active Members Age and Service Distribution

- Historical Membership Data – Active and Retired
- Summary of Membership Data by Category
- Schedule of Average Benefit Payment Amounts
- Schedule of Retired and Vested Members by Type of Benefit
- Schedule of Funding Progress – Other Post-Employment Benefits (OPEB)
- Solvency Test
- Schedule of Employer Contributions – Pension and OPEB
- Schedule of Changes in the Employers’ Net Pension Liability and Related Ratios – Pension Plan
- Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

Information in historical schedules prior to June 30, 2007 was provided by the previous actuary.

The schedules include information regarding plan funding under the New Hampshire Statute RSA 100-A:16. The basic financial objective of the New Hampshire Retirement System (NHRS) is to establish and receive pension contributions which:

- when expressed in terms of percents of active member payroll will remain approximately level from generation to generation; and
- when combined with present assets and future investment return will be sufficient to meet the financial obligations of NHRS to present and future retirees and beneficiaries.

The financial objective for medical subsidy benefits under RSA 100-A:53, 53-a, 53-b and 53-c is to contribute the lesser of 25 percent of the total employer contribution or the minimum amount necessary to maintain the benefit. RSA 100-A:16 requires biennial actuarial valuation on June 30 of odd years. The Board has adopted an Actuarial Funding Policy which requires annual actuarial valuations. The financial objectives are addressed within the statutory biennial actuarial valuation. The valuation process develops pension contribution rates that are sufficient to fund the plan’s current pension cost (i.e., the costs assigned by the valuation method to the year of service about to be rendered), as well as to fund pension unfunded actuarial accrued liabilities as a level percent of active member payroll over a closed 30-year period beginning with the fiscal year ending June 30, 2010.

The actuarial calculations for funding purposes as of June 30, 2016 in this report are based on the assumptions adopted by the Board pursuant to the June 30, 2015 experience study and the census information as of June 30, 2016. The actuarial accrued liability as of June 30, 2016 differs from the total pension liability as of June 30, 2016 under GASB No. 67 because the total pension liability is based on a roll-forward of the June 30, 2015 actuarial valuation under the System’s accounting procedures.

For funding purposes, assets are valued on a market related basis that recognizes each year's difference between actual and assumed investment return over a closed five-year period. For GASB No. 67 purposes, assets are reported and used on a market basis.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The actuarial assumptions are established by the Board after consulting with the actuary under New Hampshire Statute RSA 100-A:14 IX. We believe that the assumptions and methods used in this report are reasonable and appropriate for the purposes for which they have been used. However, other assumptions and methods could also be reasonable and could result in materially different results. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial. The actuarial funding method is the Individual Entry Age Actuarial Cost Method, in compliance with NHRS State Statutes. The assumptions and the methods comply with the requirements of Statements No. 67 and No. 43 of the Governmental Accounting Standards Board. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. Actuarial methods and assumptions were adopted by the Board pursuant to the June 30, 2015 Experience Study.

We certify that the information contained in this June 30, 2016 accounting report of the NHRS is accurate and fairly presents the actuarial position of the New Hampshire Retirement System as of June 30, 2015 under the current actuarial assumptions. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes RSA 100-A:16, 100-A:53, 100-A:53-b, 100-A:53-c, 100-A:53-d and 100-A:53-e.

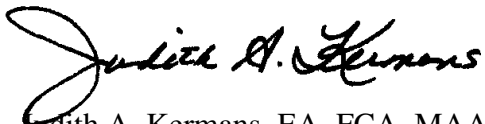
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

The actuaries submitting this report are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



David T. Kausch, FSA, EA, FCA, MAAA



Judith A. Kermans, EA, FCA, MAAA



Heidi G. Barry, ASA, MAAA

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# Table of Contents

	<u>Page</u>
<b>Section A Introduction</b>	
Executive Summary.....	1
Discussion and Comments.....	3
Results of the Valuations .....	5
<b>Section B Financial Section</b>	
<b>GASB No. 67 Pension Information</b>	
Sensitivity of Net Pension Liability to the Single Discount Rate Assumption .....	6
Financial Statements .....	7
Required Supplementary Information .....	9
Notes to Schedule of Contributions.....	12
Summary of Population Statistics.....	13
Calculation of Single Discount Rate.....	14
<b>GASB No. 43 OPEB Information</b>	
Determination of Unfunded Actuarial Accrued Liability.....	21
Notes to Required Supplemental Information .....	22
<b>Section C Actuarial Section</b>	
Summary of Changes.....	23
Development of Actuarial Value of Assets .....	24
Development of Pension Actuarial Liabilities.....	26
Actuarial Balance Sheet.....	27
Experience Gain/(Loss) .....	28
Summary of Risk Measures.....	29
Pension Solvency Test.....	30
Development of Pension Actuarial Liabilities by Division.....	32
Valuation Methods.....	36
Development of Amortization Payment .....	38
Actuarial Assumptions.....	39
Pension Plan Provisions.....	59
History of Recent Changes .....	68
Medical Subsidy Plan Provisions .....	72
<b>Section D Statistical Section</b>	
Historical Membership Data - Retired.....	74
Retirees and Beneficiaries Age Distribution .....	75
Active Members by Valuation Division.....	83
Active Members Age and Service Distribution.....	84
Historical Summary of Active Member Data.....	89
Summary of Membership Data by Category .....	90
Other Schedules of Interest.....	91

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**SECTION A**  
INTRODUCTION

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## Executive Summary Pension

Covered Group	Employees	Teachers	Police	Fire	Total
<b>I. Number of Participants as of June 30, 2016</b>					
a. Actives	24,520	17,784	4,139	1,626	48,069
b. Retirees, Disabilities, and Beneficiaries	16,142	11,410	3,629	1,595	32,776
c. Vested Terminations	973	711	89	12	1,785
d. Non-Vested Inactive Terminations	6,090	48	440	2,950	9,528
e. Total	47,725	29,953	8,297	6,183	92,158
f. Total Covered Annual Payroll	\$ 1,136,451,440	\$ 1,065,621,005	\$ 280,577,139	\$ 118,754,022	\$ 2,601,403,606
<b>II. GASB No. 67 Information</b>					
a. Total Pension Liability (TPL)					\$12,751,912,708
b. Plan Fiduciary Net Position (PFNP)					7,434,317,371
c. Net Pension Liability (NPL): a. – b.					5,317,595,337
d. PFNP as a Percentage of TPL: b. / a.					58.3%
<b>III. Statutory Funding Information</b>					
a. Actuarial Present Value of Projected Benefits	\$ 4,807,509,367	\$ 5,762,482,963	\$ 2,792,486,385	\$1,327,612,959	\$14,690,091,674
b. Actuarial Present Value of Future Normal Costs	657,685,747	741,793,648	365,931,021	191,815,536	1,957,225,952
c. Actuarial Accrued Liability (AAL): a. – b.	4,149,823,620	5,020,689,315	2,426,555,364	1,135,797,423	12,732,865,722
d. Actuarial Value of Assets	2,538,562,680	2,799,863,233	1,546,665,238	750,975,080	7,636,066,231
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	1,611,260,940	2,220,826,082	879,890,126	384,822,343	5,096,799,491
f. Funded Status: d. / c.	61.2%	55.8%	63.7%	66.1%	60.0%
<b>IV. Additional Information on Payroll</b>					
State	\$ 516,807,724	\$ -	\$ 73,760,066	\$ 3,791,263	\$ 594,359,053
Political Subdivisions	619,643,716	1,065,621,005	206,817,073	114,962,759	2,007,044,553
Total	\$ 1,136,451,440	\$ 1,065,621,005	\$ 280,577,139	\$ 118,754,022	\$ 2,601,403,606

NOTE: GASB No. 67 TPL is based on a roll-forward of the June 30, 2015 valuation. Statutory Funding information is based on data/information provided as of June 30, 2016.



## Executive Summary Medical Subsidy

<b>Covered Group</b>	<b>State Employees</b>	<b>Political Subdivision Employees</b>	<b>Teachers</b>	<b>Police and Fire</b>	<b>Grand Total</b>
<b>I. Number of Participants Covered by Post Retirement Medical Subsidy as of June 30, 2016</b>					
a. Actives	-	-	-	2,843	2,843
b. Retirees, Disabilities, and Beneficiaries	1,796	1,238	4,341	2,785	10,160
c. Vested Terminations	-	-	-	-	-
d. Total	1,796	1,238	4,341	5,628	13,003
e. Total NHRS Covered Annual Payroll	\$ 516,807,724	\$ 619,643,716	\$ 1,065,621,005	\$ 399,331,161	\$ 2,601,403,606
<b>II. GASB No. 43 and Statutory Funding Information</b>					
a. Actuarial Present Value of Projected Benefits	\$ 73,389,204	\$ 57,462,450	\$ 251,660,795	\$ 361,490,460	\$ 744,002,909
b. Actuarial Present Value of Future Normal Costs	-	-	-	13,871,011	13,871,011
c. Actuarial Accrued Liability (AAL): a. – b.	73,389,204	57,462,450	251,660,795	347,619,449	730,131,898
d. Valuation Assets	1,447,696	19,968,172	(4,604,820)	10,538,857	27,349,905
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	71,941,508	37,494,278	256,265,615	337,080,592	702,781,993
f. Funded Status: d. / c.	2.0%	34.7%	(1.8%)	3.0%	3.7%

## Discussion and Comments

### Comment 1:

In total, plan experience between June 30, 2015 and June 30, 2016 was unfavorable for pension on the basis of statutory funding and GASB No. 67 and favorable for the medical subsidy on the basis of statutory funding.

Total covered payroll increased by 1.02% versus the assumed increase of 3.25%. Between the 2015 and 2016 valuation, the pension funded ratio increased by 0.8% from 59.2% to 60.0%.

The impact on GASB No. 67 was a decrease in the ratio of plan fiduciary net position to total pension liability from 65.5% to 58.3%. See pages 7 and 8 for additional plan fiduciary net position information and page 9 for the impact on the net pension liability.

The dollar weighted rate of return for the year ending June 30, 2016 was 0.83% on the market value of assets (Note: This dollar weighted measure may differ from investment manager calculations and should not be used as a measure of investment performance). Please see pages 24 and 25 for additional asset information for statutory funding purposes.

On the basis of statutory funding, the rate of return was 6.83% on the actuarial value of assets, resulting in a recognized asset loss of \$30 million (pension and medical subsidy combined). The return on the actuarial value of assets exceeds the return on the market value of assets because some of this year's low market return is deferred and prior years' high returns are recognized this year.

The Market Value of Assets of the System of \$7.46 billion is lower than the Actuarial Value of Assets of \$7.66 billion by \$202 million as of the valuation date (see page 24). This difference will be gradually recognized over the next four years in the absence of future gains/losses.

Overall, the System had a loss of \$1 million comprised of an asset loss of \$30 million and a liability gain of \$29 million. See page 28 for additional information on gains and losses.

### Comment 2:

In June 2012, the Governmental Accounting Standards Board (GASB) issued new pension Accounting Standards No. 67 and No. 68 for retirement systems and sponsoring governmental entities respectively. The effective date is the first fiscal year following June 15, 2013 for plan disclosures and the first fiscal year following June 15, 2014 for Employer disclosures.

The steps in this implementation process are as follows:

- This report includes GASB No. 67 information for the plan's fiscal year ending June 30, 2016. This includes the determination of the GASB discount rate for the plan as a whole.
- Based on our discussion with NHRS staff, the participating employers have fiscal years ending June 30th, September 30th or December 31st. Under the GASB rules, employers with a fiscal year ending September 30, 2016, December 31, 2016 or June 30, 2017 may use a measurement date as of June 30, 2016.

## **Discussion and Comments (Concluded)**

- The June 30, 2016 GASB No. 68 disclosures will be issued in a separate report to allow sufficient time to finalize employer financial reports. This report will include proportionate shares of the Net Pension Liability, Pension Expense, and Deferred Inflows and Outflows for all participating employers.
- The GASB has issued new accounting standards for OPEB valuations similar to the new pension standards. GASB Statement No. 74 for the plan OPEB disclosures must be adopted no later than the June 30, 2017 fiscal year. GASB Statement No. 75 for employer OPEB disclosures (which will include similar proportionate share calculations) is effective for employer fiscal years beginning after June 15, 2017.

### **Comment 3:**

NHRS is supported by member contributions, employer contributions, and net earnings on the investments of the fund. The member contribution rate is set by statute at 7.00% of member compensation for Group I Members (Employees and Teachers), 11.55% of member compensation for Police Members and 11.80% of member compensation for Fire Members. The employer contributions are determined in accordance with statute by an actuarial valuation. Legislation was enacted in 2007 which requires the use of the entry-age actuarial cost method and a closed 30-year amortization of unfunded actuarial accrued liability in the determination of the employer contributions. The amortization period is 22 years for Fiscal Year 2018 and 21 years for Fiscal Year 2019.

The closed amortization period means that the unfunded actuarial accrued liability is expected to be fully paid off by June 30, 2039 if all assumptions are met. It is important to note that the current amortization period is expected to result in “negative amortization”, meaning that the UAAL is expected to increase in nominal (but not real) dollars for the next few years.

## **Results of the Valuation**

This report provides information in connection with Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 43, and it provides summaries of the member data, financial data, plan provisions, and actuarial assumptions and methods.

Calculations required for compliance with the GASB Statement No. 68 will be issued in a separate report.

Valuations for certifying contribution rates are prepared biennially, as of June 30 on the odd numbered years (2015, 2017, etc.). The June 30, 2015 actuarial valuation was the basis for the Fiscal Year 2018 and Fiscal Year 2019 employer contribution rates. The June 30, 2017 actuarial valuation will establish the fiscal year 2020 and 2021 employer contribution rates.

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**SECTION B**

FINANCIAL SECTION

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## Measurement of the Net Pension Liability

The net pension liability is measured as the total pension liability, less the amount of the pension plan’s fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer’s contribution requirement).

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2015 rolled forward to the measurement date of June 30, 2016. The roll forward procedure increases the June 30, 2015 actuarial accrued liability with normal cost and interest and decreases it with actual benefit payments and administrative expenses paid.

A single discount rate of 7.25% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.25%. The projection of cash flows, shown on pages 15-20, used to determine this single discount rate assumed that employer contributions will be made under the current statute RSA 100-A:16 and that plan member contributions will be made under RSA 100-A:16. Based on these assumptions, the pension plan’s fiduciary net position was projected to be sufficient to make all projected future benefit payments due to current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Below is a table providing the sensitivity of the net pension liability to changes in the discount rate. In particular, the table presents the plan’s net pension liability calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current single discount rate:

### Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption

Measurement Date	Net Pension Liability			Single Discount Rate Assumption
	1% Decrease	Current Single Discount Rate	1% Increase	
June 30 2013	\$5,517,542,052	\$4,303,784,472	\$3,283,507,050	7.75%
2014	\$4,944,083,125	\$3,753,585,752	\$2,749,222,899	7.75%
2015	\$5,214,835,524	\$3,961,527,090	\$2,893,074,359	7.75%
2016	\$6,832,747,755	\$5,317,595,337	\$4,061,016,509	7.25%

**Statement of Fiduciary Net Position  
as of June 30, 2016**

	<b>2016*</b>
<b>Assets</b>	
Cash and Deposits	\$ 6,722,543
Receivables	
Accounts Receivable - Sale of Investments	\$ 29,853,323
Interest and Dividend Receivables	17,792,298
Contributions	68,934,042
Accounts Receivable - Other	1,668,379
Total Receivables	\$ 118,248,042
Investments	
Fixed Income	\$ 1,759,052,683
Domestic Equities	3,123,773,216
International Equities	556,502,886
Real Estate	785,099,080
Other	1,121,892,893
Total Investments	\$ 7,346,320,758
<b>Total Assets</b>	<b>\$ 7,471,291,343</b>
<b>Liabilities</b>	
Payables	
Accounts Payable - Purchase of Investments	\$ 28,548,324
Accrued Expenses	8,425,648
<b>Total Liabilities</b>	<b>\$ 36,973,972</b>
<b>Net Position Restricted for Pensions</b>	<b>\$ 7,434,317,371</b>

\* Reported amount provided by the System as of June 30, 2016 do not include the 401(h) medical subsidy account.

**Statement of Changes in Fiduciary Net Position  
for Year Ended June 30, 2016**

	<b>Total</b>
<b>Additions</b>	
Contributions	
Employer	\$ 357,481,725
Member	207,949,398
Total Contributions	\$ 565,431,123
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (72,903,980)
Interest and Dividends	158,700,014
Less Investment Expense	(23,918,226)
Net Investment Income	\$ 61,877,808
<b>Total Additions</b>	<b>\$ 627,308,931</b>
 <b>Deductions</b>	
Benefit Payments and Refunds	\$ 694,593,145
Pension Plan Administrative Expense	7,061,317
Other custodial, professional and non-investment expenses	1,263,550
<b>Total Deductions</b>	<b>\$ 702,918,012</b>
<b>Net Increase in Net Position</b>	<b>\$ (75,609,081)</b>
 <b>Net Position Restricted for Pensions</b>	
Beginning of Year	\$ 7,509,926,452
End of Year	\$ 7,434,317,371



**Schedules of Required Supplementary Information**  
**Schedule of Changes in the Employers' Net Pension Liability**  
**and Related Ratios**  
**Ultimately 10 Fiscal Years will be Displayed**

Fiscal Year Ending	<u>June 30, 2016</u>	<u>June 30, 2015</u>	<u>June 30, 2014</u>	<u>June 30, 2013</u>
<b>Total Pension Liability</b>				
Service Cost	\$ 266,379,101	\$ 243,964,955	\$ 245,827,165	\$ 255,178,452
Interest on the Total Pension Liability	875,246,755	847,646,050	815,213,536	789,791,575
Benefit Changes	-	-	-	-
Difference between expected and actual experience of the Total Pension Liability	18,403,928	(106,715,500)	-	(101,140,741)
Assumption Changes	815,022,527	-	-	-
Benefit Payments	(670,359,868)	(631,310,997)	(599,475,606)	(573,470,316)
Refunds	(24,233,277)	(26,344,739)	(26,119,759)	(23,190,984)
<b>Net Change in Total Pension Liability</b>	<b>\$ 1,280,459,166</b>	<b>\$ 327,239,769</b>	<b>\$ 435,445,336</b>	<b>\$ 347,167,986</b>
<b>Total Pension Liability - Beginning</b>	<b>\$ 11,471,453,542</b>	<b>\$ 11,144,213,773</b>	<b>\$ 10,708,768,437</b>	<b>\$ 10,361,600,451</b>
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 12,751,912,708</b>	<b>\$ 11,471,453,542</b>	<b>\$ 11,144,213,773</b>	<b>\$ 10,708,768,437</b>
<b>Plan Fiduciary Net Position</b>				
Contributions - Employer**	\$ 357,481,725	\$ 335,488,145	\$ 324,423,138	\$ 248,653,619
Contributions - Member	207,949,398	204,063,168	199,032,996	196,488,619
Pension Plan Net Investment Income	61,877,808	249,804,954	1,092,585,321	813,797,720
Benefit Payments	(670,359,868)	(631,310,997)	(599,475,606)	(573,470,316)
Refunds	(24,233,277)	(26,344,739)	(26,119,759)	(23,190,984)
Pension Plan Administrative Expense	(7,061,317)	(7,581,315)	(7,376,270)	(6,998,526)
Other custodial, professional and non-investment expenses, and contributions other than for contribution effort	(1,263,550)	(4,820,785)	2,574,236	(622,961)
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ (75,609,081)</b>	<b>\$ 119,298,431</b>	<b>\$ 985,644,056</b>	<b>\$ 654,657,171</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>\$ 7,509,926,452</b>	<b>\$ 7,390,628,021</b>	<b>\$ 6,404,983,965</b>	<b>\$ 5,750,326,794</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 7,434,317,371</b>	<b>\$ 7,509,926,452</b>	<b>\$ 7,390,628,021</b>	<b>\$ 6,404,983,965</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 5,317,595,337</b>	<b>\$ 3,961,527,090</b>	<b>\$ 3,753,585,752</b>	<b>\$ 4,303,784,472</b>
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	58.30 %	65.47 %	66.32 %	59.81 %
<b>Covered-Employee Payroll*</b>	\$2,601,403,606	\$2,575,031,210	\$ 2,507,898,809	\$ 2,501,741,708
<b>Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	204.41 %	153.84 %	149.67 %	172.03 %

**Notes to Schedule:**

\* Based on the June 30 census data for the applicable fiscal year. Covered-employee payroll for employer's disclosure may differ.

\*\* Historical employer contribution amounts may differ from prior GASB No. 67 reports due to reclassification under GASB No. 68.

**Schedules of Required Supplementary Information**  
**Schedule of the Employers' Net Pension Liability**  
**Ultimately 10 Fiscal Years will be Displayed**

<b>FY Ending June 30,</b>	<b>Total Pension Liability</b>	<b>Plan Net Position</b>	<b>Net Pension Liability</b>	<b>Plan Net Position as a % of Total Pension Liability</b>	<b>Covered Payroll*</b>	<b>Net Pension Liability as a % of Covered Payroll</b>
2013	\$ 10,708,768,437	\$ 6,404,983,965	\$ 4,303,784,472	59.81%	\$ 2,501,741,708	172.03%
2014	11,144,213,773	7,390,628,021	3,753,585,752	66.32%	2,507,898,809	149.67%
2015	11,471,453,542	7,509,926,452	3,961,527,090	65.47%	2,575,031,210	153.84%
2016	12,751,912,708	7,434,317,371	5,317,595,337	58.30%	2,601,403,606	204.41%

\* Based on the June 30 census data. Covered-employee payroll for employer's disclosure may differ.

**Schedule of Employer Contributions**  
**Ultimately 10 Fiscal Years will be Displayed**

<b>FY Ending June 30,</b>	<b>Actuarially Determined Contribution**</b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll*</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2013	\$ 249,835,597	\$ 249,835,597	\$ -	\$ 2,501,741,708	9.99%
2014	328,444,256	328,444,256	-	2,507,898,809	13.10%
2015	332,294,226	332,294,226	-	2,575,031,210	12.90%
2016	357,481,725	357,481,725	-	2,601,403,606	13.74%

\* Based on the June 30 census data. Covered employee payroll for employer's disclosure may differ.

\*\* We do not compute a dollar amount for the Actuarial Determined Contribution. It is our understanding that employers contribute the Actuarially Determined Contribution. The amount shown in this column, therefore, matches the actual contributions. Contributions other than the Actuarial Determined Contributions are accounted for separately.

## Notes to Schedule of Contributions

**Valuation Date:** Actuarial determined contribution rates for the 2014-2015 biennium were determined based on the June 30, 2011 actuarial valuation. Actuarial determined contribution rates for the 2016-2017 biennium were determined based on the June 30, 2013 actuarial valuation. Actuarial determined contribution rates for the 2018-2019 biennium were determined based on the June 30, 2015 actuarial valuation. Future employer contribution rates for the purposes of the projection in this report are based on the closed statutory amortization period.

Notes The roll-forward of total pension liability from June 30, 2015 to June 30, 2016 reflects expected service cost and interest reduced by actual benefit payments.

**Methods and Assumptions:**

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percentage-of-Payroll, Closed
Remaining Amortization Period	23 years beginning July 1, 2016 (30 years beginning July 1, 2009)
Asset Valuation Method	5-year smoothed market for funding purposes
Price Inflation	2.5% per year
Wage Inflation	3.25% per year
Salary Increases	3.2% average, including inflation
Municipal Bond Rate	2.85% per year
Investment Rate of Return	7.25% per year
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2015 valuation pursuant to an experience study of the period 2010 - 2015.
Mortality	RP-2014 Employee generational mortality tables for males and females, adjusted for mortality improvements using Scale MP-2015, based on the last experience study.

NOTE: A full list of actuarial assumptions and the summary of benefit provisions can be found starting on page 39.

## Summary of Population Statistics as of June 30, 2015

For purposes of GASB No. 67 disclosures, the System has adopted a roll-forward methodology for accounting purposes. This means that the June 30, 2016 Total Pension Liability is based on a roll-forward of the June 30, 2015 valuation. A brief summary of the June 30, 2015 census data is shown below.

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	31,350
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,999
Active Plan Members	47,812
Non-Vested Inactive Members	<u>8,690</u>
Total Plan Members	89,851

Additional information regarding the covered population as of June 30, 2015 may be found in the actuarial valuation report issued June 30, 2016.

## Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The *Single Discount Rate* (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the plan fiduciary net position is not projected to be sufficient to pay benefits).

The determination of the discount rate is done at the plan level. Our understanding is that all pension assets are available to pay the pension benefits of the four member classifications so there is one plan for the discount rate calculation. For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.85% (based on the June 2016 Bond Buyer Index); and the resulting single discount rate is 7.25%.

The tables in this section provide background for the development of the single discount rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Service Cost contributions for future hires after June 30, 2016 are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years after June 30, 2016.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

**Single Discount Rate Development**  
**Projection of Contributions Beginning July 1, 2016**  
**(Years 1-50 only)**

Year	Payroll for Current Employees	Contributions from Current Employees	Employer Service Cost and Expense Contributions	UAL Contributions	Total Contributions
0	\$ 2,601,403,606				
1	2,568,121,463	\$ 185,454,742	\$ 77,877,815	\$ 292,672,933	\$ 556,005,490
2	2,434,836,506	176,067,675	72,161,713	350,221,574	598,450,961
3	2,311,344,950	167,328,838	66,700,259	361,603,775	595,632,871
4	2,193,597,049	158,944,834	61,463,302	395,219,669	615,627,805
5	2,079,005,213	150,733,378	56,344,505	408,064,308	615,142,192
6	1,966,252,735	142,638,858	51,410,849	421,326,398	615,376,105
7	1,856,338,161	134,766,426	46,760,457	435,019,506	616,546,388
8	1,750,580,500	127,169,704	42,444,318	449,157,640	618,771,662
9	1,647,901,246	119,770,098	38,376,541	463,755,263	621,901,902
10	1,548,704,606	112,628,599	34,584,961	478,827,309	626,040,870
11	1,453,437,132	105,756,086	31,080,362	494,389,197	631,225,645
12	1,361,204,550	99,086,244	27,824,168	510,456,845	637,367,257
13	1,272,567,905	92,678,160	24,835,074	527,046,693	644,559,927
14	1,185,742,929	86,380,043	22,019,018	544,175,710	652,574,772
15	1,101,769,012	80,250,751	19,411,882	561,861,421	661,524,054
16	1,021,356,103	74,372,135	17,051,226	580,121,917	671,545,279
17	944,400,598	68,736,319	14,915,594	598,975,880	682,627,792
18	868,732,358	63,191,065	12,927,971	618,442,596	694,561,632
19	795,364,968	57,790,352	11,102,740	638,541,980	707,435,072
20	724,985,369	52,616,202	9,466,351	659,294,594	721,377,147
21	657,535,206	47,659,254	8,001,040	680,721,669	736,381,963
22	592,702,441	42,842,513	6,674,340	702,845,123	752,361,976
23	530,329,298	38,155,047	5,469,925	725,687,589	769,312,561
24	469,435,058	33,524,742	4,354,846	-	37,879,588
25	412,150,323	29,161,341	3,378,452	-	32,539,794
26	360,009,072	25,230,672	2,573,223	-	27,803,895
27	312,545,121	21,669,703	1,943,931	-	23,613,634
28	269,407,462	18,301,385	1,623,840	-	19,925,225
29	230,461,297	15,367,609	1,330,413	-	16,698,021
30	196,477,083	12,877,937	1,079,604	-	13,957,541
31	167,158,810	10,780,024	876,842	-	11,656,866
32	140,944,060	8,950,719	707,713	-	9,658,433
33	116,955,562	7,317,540	565,955	-	7,883,495
34	95,243,730	5,871,102	452,926	-	6,324,028
35	75,709,076	4,599,539	358,218	-	4,957,757
36	58,613,334	3,510,590	277,269	-	3,787,858
37	43,729,562	2,579,259	212,501	-	2,791,760
38	31,297,339	1,812,635	160,863	-	1,973,498
39	21,326,787	1,207,394	121,134	-	1,328,528
40	13,871,966	765,442	88,388	-	853,830
41	8,701,954	467,174	61,057	-	528,230
42	5,397,038	279,334	43,828	-	323,163
43	3,308,899	161,976	33,428	-	195,404
44	1,943,984	91,812	21,495	-	113,307
45	1,055,700	48,143	12,384	-	60,527
46	528,527	23,552	6,110	-	29,663
47	254,407	11,186	2,764	-	13,949
48	125,406	5,394	1,337	-	6,731
49	60,644	2,753	467	-	3,220
50	23,124	1,154	31	-	1,185

## Single Discount Rate Development

### Projection of Plan Fiduciary Net Position Beginning July 1, 2016 (Years 1-50)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.25 %	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 7,434,317,371	\$ 556,005,490	\$ 758,204,281	\$ 8,988,425	\$ 531,466,416	\$ 7,754,596,572
2	7,754,596,572	598,450,961	795,723,776	8,521,928	554,878,716	8,103,680,545
3	8,103,680,545	595,632,871	835,385,355	8,089,707	578,689,752	8,434,528,106
4	8,434,528,106	615,627,805	875,584,717	7,677,590	601,971,282	8,768,864,886
5	8,768,864,886	615,142,192	916,788,154	7,276,518	624,740,196	9,084,682,601
6	9,084,682,601	615,376,105	956,376,019	6,881,885	646,249,414	9,383,050,216
7	9,383,050,216	616,546,388	994,666,919	6,497,184	666,572,689	9,665,005,190
8	9,665,005,190	618,771,662	1,030,296,146	6,127,032	685,837,901	9,933,191,574
9	9,933,191,574	621,901,902	1,065,364,835	5,767,654	704,156,701	10,188,117,687
10	10,188,117,687	626,040,870	1,099,866,217	5,420,466	721,569,829	10,430,441,702
11	10,430,441,702	631,225,645	1,131,230,506	5,087,030	738,217,792	10,663,567,604
12	10,663,567,604	637,367,257	1,159,978,159	4,764,216	754,325,786	10,890,518,272
13	10,890,518,272	644,559,927	1,186,008,504	4,453,988	770,119,841	11,114,735,548
14	11,114,735,548	652,574,772	1,211,339,994	4,150,100	785,769,671	11,337,589,897
15	11,337,589,897	661,524,054	1,234,603,794	3,856,192	801,427,256	11,562,081,221
16	11,562,081,221	671,545,279	1,255,343,977	3,574,746	817,331,138	11,792,038,914
17	11,792,038,914	682,627,792	1,273,487,069	3,305,402	833,761,195	12,031,635,430
18	12,031,635,430	694,561,632	1,289,242,973	3,040,563	851,005,249	12,284,918,775
19	12,284,918,775	707,435,072	1,302,217,178	2,783,777	869,373,849	12,556,726,740
20	12,556,726,740	721,377,147	1,312,100,606	2,537,449	889,233,251	12,852,699,083
21	12,852,699,083	736,381,963	1,319,069,395	2,301,373	910,985,863	13,178,696,142
22	13,178,696,142	752,361,976	1,324,428,612	2,074,459	935,006,999	13,539,562,046
23	13,539,562,046	769,312,561	1,327,214,873	1,856,153	961,682,026	13,941,485,606
24	13,941,485,606	37,879,588	1,327,570,163	1,643,023	964,765,880	13,614,917,889
25	13,614,917,889	32,539,794	1,324,718,671	1,442,526	941,008,239	13,262,304,725
26	13,262,304,725	27,803,895	1,317,241,961	1,260,032	915,547,900	12,887,154,528
27	12,887,154,528	23,613,634	1,305,810,729	1,093,908	888,613,320	12,492,476,846
28	12,492,476,846	19,925,225	1,290,459,534	942,926	860,419,945	12,081,419,555
29	12,081,419,555	16,698,021	1,271,738,202	806,615	831,174,981	11,656,747,740
30	11,656,747,740	13,957,541	1,248,928,519	687,670	801,105,291	11,222,194,384
31	11,222,194,384	11,656,866	1,222,176,958	585,056	770,474,664	10,781,563,900
32	10,781,563,900	9,658,433	1,192,458,042	493,304	739,519,508	10,337,790,494
33	10,337,790,494	7,883,495	1,160,376,775	409,344	708,428,309	9,893,316,179
34	9,893,316,179	6,324,028	1,126,856,323	333,353	677,344,942	9,449,795,474
35	9,449,795,474	4,957,757	1,092,606,414	264,982	646,363,302	9,008,245,137
36	9,008,245,137	3,787,858	1,057,983,627	205,147	615,544,484	8,569,388,705
37	8,569,388,705	2,791,760	1,023,426,598	153,053	584,924,546	8,133,525,360
38	8,133,525,360	1,973,498	988,932,489	109,541	554,525,394	7,700,982,222
39	7,700,982,222	1,328,528	954,018,186	74,644	524,387,787	7,272,605,708
40	7,272,605,708	853,830	917,572,193	48,552	494,612,564	6,850,451,357
41	6,850,451,357	528,230	879,456,604	30,457	465,352,938	6,436,845,464
42	6,436,845,464	323,163	840,210,221	18,890	436,757,408	6,033,696,924
43	6,033,696,924	195,404	800,489,846	11,581	408,939,521	5,642,330,422
44	5,642,330,422	113,307	760,792,928	6,804	381,976,531	5,263,620,529
45	5,263,620,529	60,527	721,527,734	3,695	355,916,755	4,898,066,382
46	4,898,066,382	29,663	682,787,780	1,850	330,792,798	4,546,099,213
47	4,546,099,213	13,949	644,656,585	890	306,632,725	4,208,088,411
48	4,208,088,411	6,731	607,316,247	439	283,456,605	3,884,235,061
49	3,884,235,061	3,220	570,854,724	212	261,275,725	3,574,659,070
50	3,574,659,070	1,185	535,322,694	81	240,096,898	3,279,434,378



## Single Discount Rate Development

### Projection of Plan Fiduciary Net Position Beginning July 1, 2016 (Years 51-100)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.25 %	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	\$ 3,279,434,378	\$ 217	\$ 500,748,644	\$ 15	\$ 219,924,457	\$ 2,998,610,393
52	2,998,610,393	31	467,156,927	2	200,761,106	2,732,214,601
53	2,732,214,601	-	434,579,908	-	182,607,665	2,480,242,359
54	2,480,242,359	-	403,048,438	-	165,462,695	2,242,656,616
55	2,242,656,616	-	372,594,563	-	149,322,367	2,019,384,420
56	2,019,384,420	-	343,251,933	-	134,180,192	1,810,312,679
57	1,810,312,679	-	315,054,573	-	120,026,762	1,615,284,867
58	1,615,284,867	-	288,034,443	-	106,849,588	1,434,100,011
59	1,434,100,011	-	262,220,058	-	94,633,084	1,266,513,038
60	1,266,513,038	-	237,637,282	-	83,358,563	1,112,234,320
61	1,112,234,320	-	214,311,247	-	73,004,130	970,927,203
62	970,927,203	-	192,266,163	-	63,544,517	842,205,557
63	842,205,557	-	171,524,246	-	54,950,937	725,632,247
64	725,632,247	-	152,103,452	-	47,191,058	620,719,853
65	620,719,853	-	134,016,165	-	40,229,102	526,932,790
66	526,932,790	-	117,267,956	-	34,026,040	443,690,873
67	443,690,873	-	101,857,333	-	28,539,862	370,373,402
68	370,373,402	-	87,773,881	-	23,725,938	306,325,459
69	306,325,459	-	74,997,497	-	19,537,503	250,865,465
70	250,865,465	-	63,497,551	-	15,926,233	203,294,147
71	203,294,147	-	53,233,626	-	12,842,870	162,903,391
72	162,903,391	-	44,156,577	-	10,237,826	128,984,639
73	128,984,639	-	36,209,888	-	8,061,744	100,836,495
74	100,836,495	-	29,330,053	-	6,266,034	77,772,476
75	77,772,476	-	23,446,218	-	4,803,450	59,129,708
76	59,129,708	-	18,480,244	-	3,628,716	44,278,180
77	44,278,180	-	14,348,401	-	2,699,139	32,628,917
78	32,628,917	-	10,963,127	-	1,975,136	23,640,927
79	23,640,927	-	8,235,122	-	1,420,667	16,826,472
80	16,826,472	-	6,075,496	-	1,003,536	11,754,511
81	11,754,511	-	4,397,696	-	695,575	8,052,390
82	8,052,390	-	3,120,035	-	472,676	5,405,031
83	5,405,031	-	2,167,472	-	314,669	3,552,227
84	3,552,227	-	1,473,121	-	205,070	2,284,176
85	2,284,176	-	978,672	-	130,747	1,436,251
86	1,436,251	-	634,907	-	81,515	882,859
87	882,859	-	401,905	-	49,693	530,647
88	530,647	-	248,271	-	29,630	312,006
89	312,006	-	149,786	-	17,286	179,506
90	179,506	-	88,315	-	9,869	101,059
91	101,059	-	50,954	-	5,512	55,617
92	55,617	-	28,780	-	3,007	29,844
93	29,844	-	15,865	-	1,599	15,577
94	15,577	-	8,462	-	828	7,943
95	7,943	-	4,371	-	420	3,992
96	3,992	-	2,236	-	210	1,966
97	1,966	-	1,143	-	102	925
98	925	-	607	-	45	363
99	363	-	376	-	13	0
100	0	-	-	-	0	0

## Single Discount Rate Development

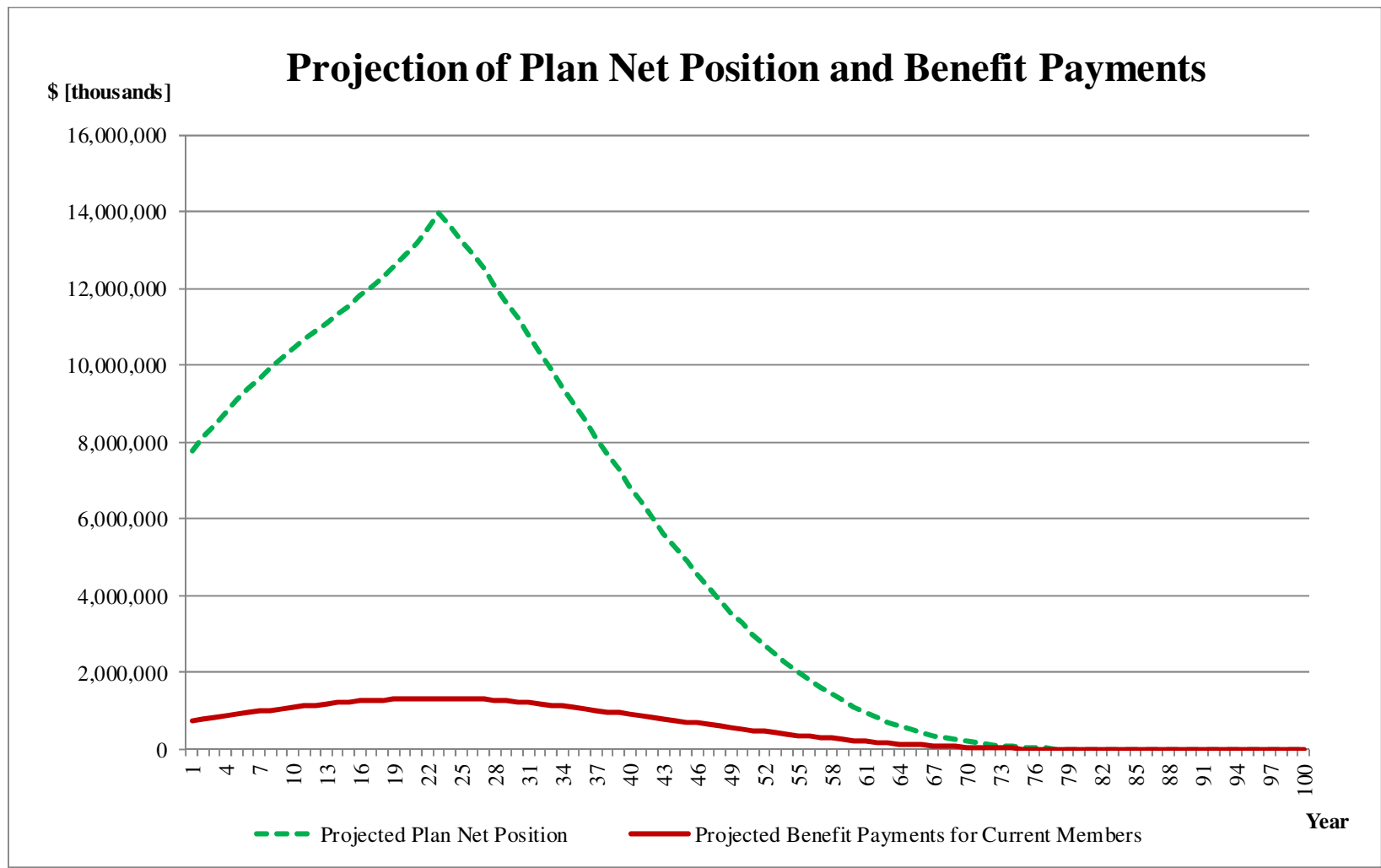
### Present Values of Projected Benefit Payments Beginning July 1, 2016 (Years 1-50)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v <sup>(a)-.5</sup>	(g)=(e)*vf <sup>(a)-.5</sup>	(h)=((c)/(1+sdr) <sup>(a)-.5</sup> )
1	\$ 7,434,317,371	\$ 758,204,281	\$ 758,204,281	\$ -	\$ 732,128,953	\$ -	\$ 732,128,953
2	7,754,596,572	795,723,776	795,723,776	-	716,417,826	-	716,417,826
3	8,103,680,545	835,385,355	835,385,355	-	701,283,475	-	701,283,475
4	8,434,528,106	875,584,717	875,584,717	-	685,342,429	-	685,342,429
5	8,768,864,886	916,788,154	916,788,154	-	669,084,762	-	669,084,762
6	9,084,682,601	956,376,019	956,376,019	-	650,793,974	-	650,793,974
7	9,383,050,216	994,666,919	994,666,919	-	631,095,697	-	631,095,697
8	9,665,005,190	1,030,296,146	1,030,296,146	-	609,512,082	-	609,512,082
9	9,933,191,574	1,065,364,835	1,065,364,835	-	587,653,464	-	587,653,464
10	10,188,117,687	1,099,866,217	1,099,866,217	-	565,673,071	-	565,673,071
11	10,430,441,702	1,131,230,506	1,131,230,506	-	542,474,651	-	542,474,651
12	10,663,567,604	1,159,978,159	1,159,978,159	-	518,657,727	-	518,657,727
13	10,890,518,272	1,186,008,504	1,186,008,504	-	494,449,045	-	494,449,045
14	11,114,735,548	1,211,339,994	1,211,339,994	-	470,871,597	-	470,871,597
15	11,337,589,897	1,234,603,794	1,234,603,794	-	447,472,907	-	447,472,907
16	11,562,081,221	1,255,343,977	1,255,343,977	-	424,233,129	-	424,233,129
17	11,792,038,914	1,273,487,069	1,273,487,069	-	401,272,202	-	401,272,202
18	12,031,635,430	1,289,242,973	1,289,242,973	-	378,775,612	-	378,775,612
19	12,284,918,775	1,302,217,178	1,302,217,178	-	356,724,842	-	356,724,842
20	12,556,726,740	1,312,100,606	1,312,100,606	-	335,134,987	-	335,134,987
21	12,852,699,083	1,319,069,395	1,319,069,395	-	314,139,810	-	314,139,810
22	13,178,696,142	1,324,428,612	1,324,428,612	-	294,094,286	-	294,094,286
23	13,539,562,046	1,327,214,873	1,327,214,873	-	274,790,662	-	274,790,662
24	13,941,485,606	1,327,570,163	1,327,570,163	-	256,283,657	-	256,283,657
25	13,614,917,889	1,324,718,671	1,324,718,671	-	238,445,860	-	238,445,860
26	13,262,304,725	1,317,241,961	1,317,241,961	-	221,072,328	-	221,072,328
27	12,887,154,528	1,305,810,729	1,305,810,729	-	204,339,233	-	204,339,233
28	12,492,476,846	1,290,459,534	1,290,459,534	-	188,286,255	-	188,286,255
29	12,081,419,555	1,271,738,202	1,271,738,202	-	173,011,369	-	173,011,369
30	11,656,747,740	1,248,928,519	1,248,928,519	-	158,422,626	-	158,422,626
31	11,222,194,384	1,222,176,958	1,222,176,958	-	144,549,441	-	144,549,441
32	10,781,563,900	1,192,458,042	1,192,458,042	-	131,500,720	-	131,500,720
33	10,337,790,494	1,160,376,775	1,160,376,775	-	119,312,721	-	119,312,721
34	9,893,316,179	1,126,856,323	1,126,856,323	-	108,033,630	-	108,033,630
35	9,449,795,474	1,092,606,414	1,092,606,414	-	97,669,028	-	97,669,028
36	9,008,245,137	1,057,983,627	1,057,983,627	-	88,180,949	-	88,180,949
37	8,569,388,705	1,023,426,598	1,023,426,598	-	79,534,438	-	79,534,438
38	8,133,525,360	988,932,489	988,932,489	-	71,658,525	-	71,658,525
39	7,700,982,222	954,018,186	954,018,186	-	64,455,587	-	64,455,587
40	7,272,605,708	917,572,193	917,572,193	-	57,802,532	-	57,802,532
41	6,850,451,357	879,456,604	879,456,604	-	51,656,352	-	51,656,352
42	6,436,845,464	840,210,221	840,210,221	-	46,015,058	-	46,015,058
43	6,033,696,924	800,489,846	800,489,846	-	40,876,202	-	40,876,202
44	5,642,330,422	760,792,928	760,792,928	-	36,222,955	-	36,222,955
45	5,263,620,529	721,527,734	721,527,734	-	32,031,195	-	32,031,195
46	4,898,066,382	682,787,780	682,787,780	-	28,262,368	-	28,262,368
47	4,546,099,213	644,656,585	644,656,585	-	24,880,204	-	24,880,204
48	4,208,088,411	607,316,247	607,316,247	-	21,854,612	-	21,854,612
49	3,884,235,061	570,854,724	570,854,724	-	19,153,869	-	19,153,869
50	3,574,659,070	535,322,694	535,322,694	-	16,747,472	-	16,747,472

## Single Discount Rate Development

### Present Values of Projected Benefit Payments Beginning July 1, 2016 (Concluded) (Years 51-100)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v <sup>(a)-5</sup>	(g)=(e)*vf <sup>(a)-5</sup>	(h)=(c)/(1+sdr) <sup>(a)-5</sup>
51	\$ 3,279,434,378	\$ 500,748,644	\$ 500,748,644	\$ -	\$ 14,606,834	\$ -	\$ 14,606,834
52	2,998,610,393	467,156,927	467,156,927	-	12,705,794	-	12,705,794
53	2,732,214,601	434,579,908	434,579,908	-	11,020,755	-	11,020,755
54	2,480,242,359	403,048,438	403,048,438	-	9,530,192	-	9,530,192
55	2,242,656,616	372,594,563	372,594,563	-	8,214,547	-	8,214,547
56	2,019,384,420	343,251,933	343,251,933	-	7,056,069	-	7,056,069
57	1,810,312,679	315,054,573	315,054,573	-	6,038,628	-	6,038,628
58	1,615,284,867	288,034,443	288,034,443	-	5,147,539	-	5,147,539
59	1,434,100,011	262,220,058	262,220,058	-	4,369,420	-	4,369,420
60	1,266,513,038	237,637,282	237,637,282	-	3,692,115	-	3,692,115
61	1,112,234,320	214,311,247	214,311,247	-	3,104,619	-	3,104,619
62	970,927,203	192,266,163	192,266,163	-	2,596,982	-	2,596,982
63	842,205,557	171,524,246	171,524,246	-	2,160,201	-	2,160,201
64	725,632,247	152,103,452	152,103,452	-	1,786,119	-	1,786,119
65	620,719,853	134,016,165	134,016,165	-	1,467,342	-	1,467,342
66	526,932,790	117,267,956	117,267,956	-	1,197,171	-	1,197,171
67	443,690,873	101,857,333	101,857,333	-	969,554	-	969,554
68	370,373,402	87,773,881	87,773,881	-	779,018	-	779,018
69	306,325,459	74,997,497	74,997,497	-	620,628	-	620,628
70	250,865,465	63,497,551	63,497,551	-	489,942	-	489,942
71	203,294,147	53,233,626	53,233,626	-	382,980	-	382,980
72	162,903,391	44,156,577	44,156,577	-	296,202	-	296,202
73	128,984,639	36,209,888	36,209,888	-	226,476	-	226,476
74	100,836,495	29,330,053	29,330,053	-	171,045	-	171,045
75	77,772,476	23,446,218	23,446,218	-	127,489	-	127,489
76	59,129,708	18,480,244	18,480,244	-	93,694	-	93,694
77	44,278,180	14,348,401	14,348,401	-	67,828	-	67,828
78	32,628,917	10,963,127	10,963,127	-	48,322	-	48,322
79	23,640,927	8,235,122	8,235,122	-	33,844	-	33,844
80	16,826,472	6,075,496	6,075,496	-	23,281	-	23,281
81	11,754,511	4,397,696	4,397,696	-	15,712	-	15,712
82	8,052,390	3,120,035	3,120,035	-	10,394	-	10,394
83	5,405,031	2,167,472	2,167,472	-	6,732	-	6,732
84	3,552,227	1,473,121	1,473,121	-	4,266	-	4,266
85	2,284,176	978,672	978,672	-	2,643	-	2,643
86	1,436,251	634,907	634,907	-	1,599	-	1,599
87	882,859	401,905	401,905	-	944	-	944
88	530,647	248,271	248,271	-	543	-	543
89	312,006	149,786	149,786	-	306	-	306
90	179,506	88,315	88,315	-	168	-	168
91	101,059	50,954	50,954	-	90	-	90
92	55,617	28,780	28,780	-	48	-	48
93	29,844	15,865	15,865	-	24	-	24
94	15,577	8,462	8,462	-	12	-	12
95	7,943	4,371	4,371	-	6	-	6
96	3,992	2,236	2,236	-	3	-	3
97	1,966	1,143	1,143	-	1	-	1
98	925	607	607	-	1	-	1
99	363	231	231	-	-	-	-
100	0	-	-	-	-	-	-
<b>Totals</b>	<b>\$ 14,621,404,498</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 14,621,404,498</b>	<b>\$ -</b>	<b>\$ 14,621,404,498</b>



**Medical Subsidy  
Determination of Unfunded Actuarial Accrued Liability  
as of June 30, 2016**

	<b>State Employees</b>	<b>Political Subdivision Employees</b>	<b>Teachers</b>	<b>Police &amp; Fire</b>	<b>Total</b>
A. Present Value of Future Medical Benefits					
1. Retirees and Beneficiaries	\$ 73,389,204	\$ 57,462,450	\$ 251,660,795	\$ 208,822,457	\$ 591,334,906
2. Vested Terminated Members	-	-	-	-	-
3. Active Members	-	-	-	152,668,003	152,668,003
Total Present Value of Future Medical Benefits	73,389,204	57,462,450	251,660,795	361,490,460	744,002,909
B. Present Value of Future Employer Normal Costs	-	-	-	13,871,011	13,871,011
C. Present Value of Future Contributions from Current Active Members	-	-	-	-	-
D. Actuarial Medical Accrued Liability (A.-B.-C.)	73,389,204	57,462,450	251,660,795	347,619,449	730,131,898
E. 401(h) Subtrust Actuarial Value of Assets	1,447,696	19,968,172	(4,604,820)	10,538,857	27,349,905
F. Unfunded Actuarial Accrued Liability (D.-E.)	\$ 71,941,508	\$ 37,494,278	\$ 256,265,615	\$ 337,080,592	\$ 702,781,993

The Unfunded Actuarial Accrued Liability (UAAL) is not booked as an expense all in one-year under GASB Statement No. 43 and does not appear in the System's Statement of Net Assets. Nevertheless, it is reported in the Notes to the Financial Statements and in the Required Supplementary Information. These are information sections within the System's financial statements.

New reporting requirements under GASB Statement No. 74 will be reflected June 30, 2017.

**Notes to Required Supplementary Information  
(as Required by GASB Statement No. 43)**

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	June 30, 2016
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Equivalent Single Amortization Period	14 Years*
Valuation Asset Method	5-Year Smoothed Market
Actuarial Assumptions:	
Investment Rate of Return	3.25%
Projected Salary Increase	3.75% to 25.25%
* Includes Price Inflation at	2.50%
Rate of Payroll Growth	3.25%
Increase in Medical Supplement	0.0%

\* The ARC is based on the greater of a 20-year amortization or the amount necessary to meet cash flow for each of the four subaccounts separately. The Equivalent Single Amortization Period shown is based on the total 401(h) contributions.

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**SECTION C**

ACTUARIAL SECTION

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## Summary of Changes from June 30, 2015 to June 30, 2016 (\$ in Millions)

	Pension				
	Employees	Teachers	Police	Fire	Total
<b>Reconciliation of UAAL</b>					
Expected	\$1,617.5	\$2,211.3	\$877.7	\$389.0	\$5,095.5
Impact of (Gain)Loss	(6.2)	9.5	2.2	(4.2)	1.3
Impact of Assumption Change	0.0	0.0	0.0	0.0	0.0
Impact of Plan Change	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>N/A</u>
Total	\$1,611.3	\$2,220.8	\$879.9	\$384.8	\$5,096.8
<b>Funded %</b>					
Prior Valuation	60.0 %	55.3 %	63.1 %	65.2 %	59.2 %
Expected Change	1.1 %	0.7 %	0.7 %	0.5 %	0.8 %
Impact of (Gain)Loss	0.2 %	(0.2)%	(0.1)%	0.4 %	0.0 %
Impact of Assumption Change	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Impact of Plan Change	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>
Total	61.2 %	55.8 %	63.7 %	66.1 %	60.0 %
<b>Reconciliation of Employer Contribution Rate</b>					
<b>State Employees</b>					
Prior Valuation	10.34 %		20.88 %	23.38 %	11.73 %
Impact of (Gain)Loss	(0.44)%		(1.57)%	(1.39)%	(0.57)%
Impact of Assumption Change	1.18 %		6.02 %	5.80 %	1.81 %
Impact of Plan Change	<u>0.00 %</u>		<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>
Total	11.08 %		25.33 %	27.79 %	12.97 %
<b>Political Subdivision Employees</b>					
Prior Valuation	10.34 %	12.09 %	20.88 %	23.38 %	13.12 %
Impact of (Gain)Loss	(0.44)%	(0.30)%	(1.57)%	(1.39)%	(0.56)%
Impact of Assumption Change	1.18 %	3.91 %	6.02 %	5.80 %	3.40 %
Impact of Plan Change	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>
Total	11.08 %	15.70 %	25.33 %	27.79 %	15.96 %
<b>Medical Subsidy</b>					
	State	Political	Teachers	Police & Fire	Total
	Employees	Subdivision Employees			
<b>Reconciliation of UAAL</b>					
Expected	\$71.6	\$39.0	\$254.0	\$345.2	\$709.8
Impact of (Gain)Loss	0.3	(1.5)	2.3	(8.1)	(7.0)
Impact of Assumption Change	0.0	0.0	0.0	0.0	0.0
Impact of Plan Change	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total	\$71.9	\$37.5	\$256.3	\$337.1	\$702.8

The pension funded percent of 60.0% is the ratio of the actuarial value of assets to the actuarial accrued liability for NHRS in total. That ratio is 58.4% based on market value of assets.

The funded percent is appropriate for assessing the need for future contributions, but does not give an indication for the amount of such contributions. The funded percent is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan's benefit obligations.



## Development of Actuarial Value of Assets

Year Ended June 30:	2014	2015	2016	2017	2018	2019	2020
A. Funding Value Beginning of Year	\$ 6,092,504,545	\$ 6,721,799,334	\$ 7,300,276,091				
B. Market Value End of Year	7,414,061,986	7,530,056,191	7,460,944,677				
C. Market Value Beginning of Year	6,428,009,027	7,414,061,986	7,530,056,191				
D. Non-Investment Net Cash Flow	(111,915,208)	(134,800,821)	(131,267,165)				
E. Investment Income							
E1. Market Total: B - C - D	1,097,968,167	250,795,026	62,155,651				
E2. Assumed Rate	7.75%	7.75%	7.25%				
E3. Amount for Immediate Recognition	467,832,388	515,715,917	524,511,582				
E4. Amount for Phased-In Recognition: E1-E3	630,135,779	(264,920,891)	(462,355,931)				
F. Phased-In Recognition of Investment Income							
F1. Current Year: 0.20 x E4	126,027,156	(52,984,178)	(92,471,186)				
F2. First Prior Year	74,311,509	126,027,156	(52,984,178)	\$ (92,471,186)			
F3. Second Prior Year	(84,987,675)	74,311,509	126,027,156	(52,984,178)	\$ (92,471,186)		
F4. Third Prior Year	135,194,850	(84,987,675)	74,311,509	126,027,156	(52,984,178)	\$ (92,471,186)	
F5. Fourth Prior Year	22,831,769	135,194,849	(84,987,673)	74,311,510	126,027,155	(52,984,179)	\$ (92,471,187)
F6. Total Recognized Investment Gain	273,377,609	197,561,661	(30,104,372)	54,883,302	(19,428,209)	(145,455,365)	(92,471,187)
G. Preliminary Funding Value End of Year: A + D + E3 + F6	\$6,721,799,334	\$7,300,276,091	\$ 7,663,416,136				
H. Additional Recognized G/L due to Corridor	-	-	-				
I. Final Funding Value after 20% Corridor	\$ 6,721,799,334	\$ 7,300,276,091	\$ 7,663,416,136				
J. Difference between Market & Funding Value: B-I	\$ 692,262,652	\$ 229,780,100	\$ (202,471,459)				
K. Recognized Rate of Return	12.28%	10.72%	6.83%				
L. Market Rate of Return	17.23%	3.41%	0.83%				
M. Ratio of Funding Value to Market Value	90.66%	96.95%	102.71%				

The Funding Value of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If assumed rates are exactly realized for 4 consecutive years, it will become equal to Market Value. Final Funding Value of Assets may not be less than 80% nor more than 120% of Market Value of Assets.

### Allocation of Assets

	<b>Employees</b>	<b>Teachers</b>	<b>Police</b>	<b>Fire</b>	<b>Total</b>
Allocated Fund Assets (Actuarial Value)	\$ 2,559,978,548	\$ 2,795,258,413	\$ 1,552,952,951	\$ 755,226,224	\$ 7,663,416,136
Less Reserve for TSAs	-	-	-	-	-
Less 401(h) Account	21,415,868	(4,604,820)	6,287,713	4,251,144	27,349,905
Net Pension Valuation Assets	\$ 2,538,562,680	\$ 2,799,863,233	\$ 1,546,665,238	\$ 750,975,080	\$ 7,636,066,231

The Actuarial Value of Assets was allocated to the pension and medical subsidy plans based on the Market Value of those plans. The Actuarial Value of Assets was then further allocated to each fund (either pension or medical subsidy) based on the Market Value of those funds. The 401(h) account for Police and Fire is combined. The allocation between Police and Fire is based on the percentage of the market value of assets.

## Development of Pension Actuarial Liabilities June 30, 2016

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 6,113,135,415	\$ 1,143,978,099	\$ 4,969,157,316
Disability benefits likely to be paid to present active members	231,417,389	117,309,007	114,108,382
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	75,890,083	34,521,612	41,368,471
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	1,076,192,441	661,417,234	414,775,207
Benefits likely to be paid to current inactive and vested deferred members	229,229,063	-	229,229,063
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	6,964,227,283	-	6,964,227,283
<b>Total</b>	<b>\$ 14,690,091,674</b>	<b>\$ 1,957,225,952</b>	<b>\$ 12,732,865,722</b>
Actuarial Value of Assets	\$ 7,636,066,231	-	\$ 7,636,066,231
Liabilities to be Covered by Future Contributions	\$ 7,054,025,443	\$ 1,957,225,952	\$ 5,096,799,491
Funded Ratio			60.0%

## Actuarial Balance Sheet as of June 30, 2016

### Assets and Present Value of Expected Future Contributions

	Pension	Medical Subsidy
A. Present valuation assets		
1. Net assets from system financial statements	\$ 7,434,317,371	\$ 26,627,306
2. Reserve for TSAs	-	-
3. Funding value adjustment	201,748,860	722,599
4. Valuation assets	7,636,066,231	27,349,905
B. Actuarial present value of expected future employer contributions		
1. For normal costs	401,838,000	13,871,011
2. For unfunded actuarial accrued liability	5,096,799,491	702,781,993
3. Total	5,498,637,491	716,653,004
C. Actuarial present value of expected future member contributions	1,555,387,952	-
D. Total Present and Expected Future Resources	\$ 14,690,091,674	\$ 744,002,909

### Present Value of Expected Future Benefit Payments

	Pension	Medical Subsidy
A. To retirees and beneficiaries	\$ 6,964,227,283	\$ 591,334,906
B. To vested terminated members	158,343,799	-
C. To non-vested terminated members (outstanding refunds)	70,885,264	-
D. To present active members		
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	5,539,409,376	138,796,992
2. Allocated to service likely to be rendered after valuation date	1,957,225,952	13,871,011
3. Total	7,496,635,328	152,668,003
E. Total Actuarial Present Value of Expected Future Pension Payments	\$ 14,690,091,674	\$ 744,002,909

### Experience Gain/(Loss) -- June 30, 2016

	<b>Pension</b>	<b>Medical Subsidy</b>
(1) Actual UAAL* as of June 30, 2015	\$ 5,022,875,296	\$ 741,826,561
(2) Normal cost from 2015 valuation	284,098,237	2,908,975
(3) Actual contributions (employer and employee)	565,431,098	58,174,145
(4) Interest accrual: [(1)+1/2 [(2)-(3)]] x {.0725 for pension; .0325 for medical subsidy}	353,960,143	23,211,304
(5) Expected UAAL end of year: (1)+(2)-(3)+(4)	5,095,502,578	709,772,695
(6) Change from legislation	-	-
(7) Change from revised actuarial assumptions	-	-
(8) Expected UAAL after changes: (5)+(6)+(7)	5,095,502,578	709,772,695
(9) Actual UAAL as of June 30, 2016	5,096,799,491	702,781,993
(10) Gain/(loss) for year 2: (8)-(9)	(1,296,913)	6,990,702
(11) Gain/(loss) as percent of actuarial accrued liabilities at start of year	(0.0)%	0.9 %

\* *Unfunded Actuarial Accrued Liabilities.*

## Summary of Risk Measures

Valuation Year	Funded Ratio	Actual Total Payroll / Expected Total Payroll	UAAL Amortization Period	UAAL / Total Payroll	Funding Value of Assets / Total Payroll	Total AAL / Total Payroll	Standard Deviation of Investment Return / Total Payroll
June 30, 2007*	67.0 %	98 %	30	1.1	2.2	3.3	***
June 30, 2008	67.8	101	30	1.1	2.3	3.4	***
June 30, 2009*	58.3	103	30	1.4	2.0	3.5	23%
June 30, 2010	58.5	98	30	1.5	2.1	3.6	23%
June 30, 2011#*	57.4	98	29	1.7	2.3	4.0	26%
June 30, 2012	56.1	96	28	1.8	2.3	4.2	28%
June 30, 2013	56.7	97	27	1.9	2.4	4.3	29%
June 30, 2014	60.7	97	26	1.7	2.7	4.4	32%
June 30, 2015#^	59.2	99	25	2.0	2.8	4.8	33%
June 30, 2016	60.0	98	24	2.0	2.9	4.9	34%

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

\*\*\* Unavailable.

^ The standard deviation of investment return as of June 30, 2015 was updated in the 7/1/2010-6/30/2015 experience study.

These risk measures are provided in accordance with the System's Actuarial Funding Policy. Short term fluctuations will occur due to experience, plan changes, and assumption and method changes. Long term expectations are described below.

**Funded Ratio:** The funded ratio is expected to trend toward 100% by June 30, 2039 under the statutory 30-year amortization period.

**Actual Total Payroll / Expected Total Payroll:** This ratio is expected to remain near 100% each year.

**UAAL Amortization Period:** The statutory amortization period is decreased by one year each year beginning with the 2010-2011 biennium.

**UAAL / Total Payroll:** The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward 0% by June 30, 2039.

**Funding Value of Assets / Total Payroll:** As the funded ratio increases, this ratio is expected to converge to the ratio of Total AAL / Payroll.

**Total AAL / Total Payroll:** Total AAL / Total Payroll is expected to grow as the System matures. The rate of growth may slow down as members hired on or after July 1, 2011 replace current members.

**Standard Deviation of Investment Return / Total Payroll:** This measure illustrates the impact of a one standard deviation change in investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in investment policy, this metric is expected to increase as the assets grow to 100% of the AAL.

## Pension Solvency Test

The New Hampshire Retirement System funding objective is to meet long-term benefit promises through contributions that remain approximately level from year-to-year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness.

A *solvency test* is one means of checking a system's progress under its funding program. In a solvency test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives;
- 3) The liabilities for service already rendered by active and inactive members.

In a System that has been following the discipline of level percent-of-payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

### Total of all Groups (\$ in Thousands)

Fiscal Year	Projected Pension Liabilities for				Net Assets Available for Benefits	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1)	(2)	(3)	Net Assets Available for Benefits		(1)	(2)	(3)
	Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members (Employer Financed Portion)			(1)	(2)	(3)
2007 *	\$2,228,853	\$3,210,280	\$1,820,582	\$4,862,256	100%	82%	0%	
2008	2,312,069	3,618,118	1,891,129	5,302,034	100%	83%	0%	
2009 *	2,393,635	4,012,274	2,069,143	4,937,320	100%	63%	0%	
2010	2,553,612	4,378,205	2,022,115	5,233,838	100%	61%	0%	
2011 #*	2,631,430	4,959,865	2,406,956	5,740,516	100%	63%	0%	
2012	2,773,081	5,246,672	2,341,847	5,817,882	100%	58%	0%	
2013	2,808,526	5,519,814	2,380,428	6,070,681	100%	59%	0%	
2014	2,842,340	5,789,052	2,413,782	6,700,553	100%	67%	0%	
2015 #	2,949,169	6,565,522	2,788,945	7,280,761	100%	66%	0%	
2016	2,978,817	6,964,227	2,789,822	7,636,066	100%	67%	0%	

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

## Pension Solvency Test -- Comparative Statement (\$ in Thousands)

Group	Fiscal Year	Projected Pension Liabilities for				Net Assets Available for Benefits	Percentage of Accrued Liabilities Covered by Net Assets Available		
		(1)	(2)	(3)	(1)		(2)	(3)	
		Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members (Employer Financed Portion)					
Employees	2008	\$ 837,375	\$ 1,124,075	\$ 581,109	\$ 1,696,189	100%	76%	0%	
Teachers	2008	943,611	1,387,605	828,084	2,114,543	100%	84%	0%	
Police	2008	359,611	727,584	339,186	1,014,088	100%	90%	0%	
Fire	2008	171,471	378,854	142,751	477,214	100%	81%	0%	
Employees	2009 *	899,364	1,217,430	666,232	1,600,150	100%	58%	0%	
Teachers	2009 *	926,049	1,608,341	855,367	1,957,103	100%	64%	0%	
Police	2009 *	381,273	790,433	378,409	940,825	100%	71%	0%	
Fire	2009 *	186,949	396,070	169,135	439,241	100%	64%	0%	
Employees	2010	955,735	1,344,902	680,958	1,721,002	100%	57%	0%	
Teachers	2010	998,775	1,770,635	783,710	2,049,650	100%	59%	0%	
Police	2010	397,440	851,136	386,621	997,325	100%	70%	0%	
Fire	2010	201,661	411,532	170,827	465,861	100%	64%	0%	
Employees	2011 #*	995,389	1,548,109	810,983	1,834,609	100%	54%	0%	
Teachers	2011 #*	1,041,699	1,893,862	973,407	2,153,182	100%	59%	0%	
Police	2011 #*	396,344	1,030,900	432,256	1,179,798	100%	76%	0%	
Fire	2011 #*	197,998	486,994	190,310	572,927	100%	77%	0%	
Employees	2012	1,052,106	1,641,026	756,255	1,877,395	100%	50%	0%	
Teachers	2012	1,101,262	1,999,152	949,670	2,173,315	100%	54%	0%	
Police	2012	411,672	1,092,005	432,116	1,189,308	100%	71%	0%	
Fire	2012	208,041	514,489	203,805	577,864	100%	72%	0%	
Employees	2013	1,069,628	1,729,855	755,482	1,977,479	100%	52%	0%	
Teachers	2013	1,107,192	2,087,926	977,937	2,255,011	100%	55%	0%	
Police	2013	417,630	1,160,173	438,580	1,236,579	100%	71%	0%	
Fire	2013	214,076	541,860	208,430	601,612	100%	72%	0%	
Employees	2014	1,083,878	1,823,517	784,437	2,195,284	100%	61%	0%	
Teachers	2014	1,113,650	2,198,892	966,511	2,482,496	100%	62%	0%	
Police	2014	422,972	1,209,741	454,133	1,361,280	100%	78%	0%	
Fire	2014	221,840	556,902	208,701	661,493	100%	79%	0%	
Employees	2015 #	1,137,601	2,007,299	863,247	2,403,294	100%	63%	0%	
Teachers	2015 #	1,155,922	2,555,611	1,141,245	2,682,083	100%	60%	0%	
Police	2015 #	433,215	1,364,908	543,229	1,477,517	100%	77%	0%	
Fire	2015 #	222,431	637,704	241,223	717,867	100%	78%	0%	
Employees	2016	1,152,928	2,139,549	857,347	2,538,563	100%	65%	0%	
Teachers	2016	1,171,831	2,692,037	1,156,821	2,799,863	100%	60%	0%	
Police	2016	430,490	1,460,840	535,225	1,546,665	100%	76%	0%	
Fire	2016	223,568	671,801	240,428	750,975	100%	79%	0%	

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.



## Development of Pension Actuarial Liabilities June 30, 2016

### Employees

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 2,062,691,180	\$ 343,120,572	\$ 1,719,570,608
Disability benefits likely to be paid to present active members	71,316,642	41,178,418	30,138,224
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	37,479,880	16,231,964	21,247,916
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	386,895,725	257,154,793	129,740,932
Benefits likely to be paid to current inactive and vested deferred members	109,577,992	-	109,577,992
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	2,139,547,948	-	2,139,547,948
<b>Total</b>	<b>\$ 4,807,509,367</b>	<b>\$ 657,685,747</b>	<b>\$ 4,149,823,620</b>
Actuarial Value of Assets	\$ 2,538,562,680	-	\$ 2,538,562,680
Liabilities to be Covered by Future Contributions	\$ 2,268,946,687	\$ 657,685,747	\$ 1,611,260,940
Funded Ratio			61.2%

## Development of Pension Actuarial Liabilities June 30, 2016

### Teachers

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 2,488,449,569	\$ 446,824,758	\$ 2,041,624,811
Disability benefits likely to be paid to present active members	52,188,724	23,215,386	28,973,338
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	22,632,920	9,730,023	12,902,897
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	411,689,331	262,023,481	149,665,850
Benefits likely to be paid to current inactive and vested deferred members	95,484,952	-	95,484,952
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	2,692,037,467	-	2,692,037,467
<b>Total</b>	<b>\$ 5,762,482,963</b>	<b>\$ 741,793,648</b>	<b>\$ 5,020,689,315</b>
Actuarial Value of Assets	\$ 2,799,863,233	-	\$ 2,799,863,233
Liabilities to be Covered by Future Contributions	\$ 2,962,619,730	\$ 741,793,648	\$ 2,220,826,082
Funded Ratio			55.8%

## Development of Pension Actuarial Liabilities June 30, 2016

### Police

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 1,010,560,641	\$ 211,951,349	\$ 798,609,292
Disability benefits likely to be paid to present active members	74,083,498	35,462,714	38,620,784
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	9,817,521	5,406,329	4,411,192
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	216,381,273	113,110,629	103,270,644
Benefits likely to be paid to current inactive and vested deferred members	20,803,038	-	20,803,038
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	1,460,840,414	-	1,460,840,414
<b>Total</b>	<b>\$ 2,792,486,385</b>	<b>\$ 365,931,021</b>	<b>\$ 2,426,555,364</b>
Actuarial Value of Assets	\$ 1,546,665,238	-	\$ 1,546,665,238
Liabilities to be Covered by Future Contributions	\$ 1,245,821,147	\$ 365,931,021	\$ 879,890,126
Funded Ratio			63.7%

## Development of Pension Actuarial Liabilities June 30, 2016

### Fire

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 551,434,025	\$ 142,081,420	\$ 409,352,605
Disability benefits likely to be paid to present active members	33,828,525	17,452,489	16,376,036
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	5,959,762	3,153,296	2,806,466
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	61,226,112	29,128,331	32,097,781
Benefits likely to be paid to current inactive and vested deferred members	3,363,081	-	3,363,081
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	671,801,454	-	671,801,454
<b>Total</b>	<b>\$ 1,327,612,959</b>	<b>\$ 191,815,536</b>	<b>\$ 1,135,797,423</b>
Actuarial Value of Assets	\$ 750,975,080	\$ -	\$ 750,975,080
Liabilities to be Covered by Future Contributions	\$ 576,637,879	\$ 191,815,536	\$ 384,822,343
Funded Ratio			66.1%

## Valuation Methods

### Pension

**Actuarial Cost Method** - Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

- (i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gain/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

**Financing of Unfunded Actuarial Accrued Liabilities** - Unfunded Actuarial Accrued Liabilities were amortized by level (principal & interest combined) percent-of-payroll contributions over 22 years from the contribution effective date (Fiscal Year 2018).

The rate-setting valuations project the unfunded actuarial accrued liability to the beginning of the applicable biennium to determine the unfunded amortization rate. We projected the normal cost rates from the first year of the rate setting biennium to better reflect the impact of the changing benefit tiers and generational mortality. We developed projected normal cost rates based on a new entrant profile determined by the current active population with 3-8 years of service.

### Medical Subsidy

Liabilities are determined under the entry-age actuarial cost method.

Under New Hampshire Statute, contribution rates to the 401(h) sub-trust are determined as the lesser of 25% of the employers' total contributions or the actuarial required contribution rate that keeps the medical subsidy sub-trust solvent (the "solvency rate"). Under IRS Regulations, 401(h) sub-trust contributions are limited by 25% of the total contributions to the plan (other than contributions to fund past service credits). NHRS maintains the historical information for determining compliance with IRC Section 401(h). A test for compliance with IRC Section 401(h) was outside the scope of this valuation.

At the November 12, 2013 Board meeting, the Board elected to incorporate a 20% margin requirement from the end of the first year of the biennium and every year thereafter.

## Valuation Methods

*Actuarial Value of Assets* - The Actuarial Value of Assets recognizes assumed investment return fully each year. Differences between actual return on the Market Value of assets and assumed return on the Actuarial Value of Assets are phased-in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than Market Value. The Actuarial Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If assumed rates are exactly realized for 4 consecutive years, it will become equal to Market Value. Actuarial Value is limited to a 20% corridor around the Market Value.

The Actuarial Value of Assets was allocated to the pension and medical subsidy plans based on the Market Value of those plans. The Actuarial Value of Assets was then further allocated to each fund (either pension or medical subsidy) based on the Market Value of those funds.

For purposes of determining the medical subsidy solvency rates, the Market Value of Assets was used for all group funds due to the short time horizon before these closed group funds are expected to become pay-as-you-go.

## **Development of Amortization Payment**

The employer contribution rates determined by the 2015 valuation are for the 2018-2019 biennium. The Unfunded Actuarial Accrued Liability (UAAL) was determined using the Actuarial Value of assets and actuarial accrued liability calculated as of the valuation date. The UAAL amortization payment (one component of the contribution requirement), is the level percent of pay required to fully amortize the UAAL over a 22-year period beginning on July 1, 2017. This UAAL payment reflects any payments expected to be made and interest to be accrued between the valuation date and the date contributions determined by this report are scheduled to begin. It was assumed that the entire pension contribution as determined by the June 30, 2013 valuation effective from July 1, 2015 to June 30, 2017 would be contributed to the net pension assets.

## Valuation Assumptions

*The actuarial assumptions used* in the valuation are shown in this section. All actuarial assumptions and the rationale for the assumptions are based on the July 1, 2010 to June 30, 2015 experience study.

All actuarial assumptions are expectations of future experience, not market measures. Under RSA 100-A:14 IX, the Board of Trustees sets the actuarial assumptions after consulting with the actuary.

## Economic Assumptions

*The investment return rate* assumed in the valuations is 7.25% per year, compounded annually (net after investment expenses). *The investment return rate* assumed in the medical subsidy valuations is 3.25% per year, compounded annually (net after investment expenses) for purposes of computing accrued liabilities and other disclosures required by GASB Statement No. 43. However, for determining the solvency contribution rate for the medical subsidy account, the investment return rate assumption was 7.25% on the market value of assets.

The *Wage Inflation Rate* assumed in this valuation was 3.25% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes related to individual merit and seniority effects.

The *Price Inflation* assumption is 2.50% per year.

The assumed *Real Rate of Return* over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 7.25% investment return rate translates to an assumed real rate of return over wage inflation of 4.00%. The assumed real rate of return over price inflation would be higher – at 4.75%, with a 2.50% price inflation assumption.

The active member population for Employees, Police and Fire is assumed to remain constant. For purposes of financing the unfunded liabilities, total payroll is assumed to grow at the wage inflation rate – 3.25% per year. For Teachers, the active member population is assumed to decline by 0.25% per year. For purposes of financing the unfunded liabilities, total payroll for Teachers is assumed to grow at the wage inflation rate minus 0.25% which is 3.00% per year.

*Pay increase assumptions* for individual active members are shown for sample ages on the following pages. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.25% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.



## Valuation Assumptions

### Employees

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefits will be based.

<b>Salary Increase Assumptions for an Individual Member</b>			
<b>Service Index</b>	<b>Merit &amp; Seniority</b>	<b>Base (Economy)</b>	<b>Increase Next Year</b>
1	10.00%	3.25%	13.25%
2	6.00%	3.25%	9.25%
3	2.50%	3.25%	5.75%
4	2.00%	3.25%	5.25%
5	1.50%	3.25%	4.75%
6	1.25%	3.25%	4.50%
7	1.00%	3.25%	4.25%
8	1.00%	3.25%	4.25%
9	1.00%	3.25%	4.25%
10	0.50%	3.25%	3.75%
11	0.50%	3.25%	3.75%
12	0.50%	3.25%	3.75%
13	0.50%	3.25%	3.75%
14	0.50%	3.25%	3.75%
15	0.50%	3.25%	3.75%
16	0.50%	3.25%	3.75%
17	0.50%	3.25%	3.75%
18	0.50%	3.25%	3.75%
19	0.50%	3.25%	3.75%
20	0.50%	3.25%	3.75%
21	0.50%	3.25%	3.75%
22	0.50%	3.25%	3.75%
23	0.50%	3.25%	3.75%
24	0.50%	3.25%	3.75%
25	0.50%	3.25%	3.75%
Ref:	662 - -3.25%		

## Valuation Assumptions

### Employees (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

#### For Members Hired Prior to July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year					
	Male			Female		
	Normal	Early	Early Rule X	Normal	Early	Early Rule X
45			1.00%			1.00%
46			1.00%			1.00%
47			1.00%			1.25%
48			1.00%			1.25%
49			1.00%			1.00%
50		0.75%	1.75%		0.75%	2.20%
51		0.75%	2.50%		0.75%	2.50%
52		0.75%	3.10%		0.75%	2.50%
53		0.75%	3.50%		0.75%	3.50%
54		0.75%	3.75%		1.25%	4.00%
55		1.50%	6.00%		1.75%	8.00%
56		2.20%	9.00%		2.75%	6.00%
57		2.20%	11.00%		2.50%	12.00%
58		3.00%	11.50%		3.25%	12.00%
59		4.50%	18.00%		5.00%	13.00%
60	11.00%			11.00%		
61	11.00%			11.00%		
62	16.00%			15.00%		
63	16.00%			14.00%		
64	14.00%			14.00%		
65	16.00%			20.00%		
66	25.00%			22.00%		
67	23.00%			22.00%		
68	21.00%			18.00%		
69	20.00%			19.00%		
70	100.00%			100.00%		
Ref.	2552	2554	2556	2553	2555	2557

## Valuation Assumptions

### Employees (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

#### For Members Hired on or After July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year			
	Male		Female	
	Normal	Early	Normal	Early
60		11%		11%
61		11%		11%
62		16%		15%
63		16%		14%
64		14%		14%
65	45%		44%	
66	45%		44%	
67	23%		22%	
68	21%		18%	
69	20%		19%	
70	100%		100%	
Ref.	999	2552	999	2553
	65	60	65	60

## Valuation Assumptions

### Employees (Concluded)

*Rates of separation from active membership* were as shown below (rates do not apply to members eligible for normal retirement and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	23.00%	30.00%
	1	20.00%	22.00%
	2	15.00%	16.00%
	3	12.00%	12.00%
	4	10.00%	8.00%
25	5+	7.20%	7.20%
30		7.20%	7.20%
35		5.04%	5.04%
40		5.04%	5.04%
45		5.04%	5.04%
50		3.96%	3.96%
55		3.60%	3.60%
60		3.60%	3.60%
Ref.		256	256
		1.8	1.8
		59	36

*Rates of disability* among active members. 60% are assumed to be ordinary disability and 40% are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Men	Women
20	0.03%	0.00%
25	0.03%	0.02%
30	0.03%	0.02%
35	0.03%	0.03%
40	0.08%	0.06%
45	0.16%	0.11%
50	0.27%	0.23%
55	0.47%	0.42%
Ref.	7	19
	1.40	0.90

## Valuation Assumptions

### Teachers

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefits will be based.

#### Salary Increase Assumptions for an Individual Member

Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	10.00%	3.25%	13.25%
2	6.00%	3.25%	9.25%
3	3.25%	3.25%	6.50%
4	2.75%	3.25%	6.00%
5	2.50%	3.25%	5.75%
6	2.25%	3.25%	5.50%
7	2.00%	3.25%	5.25%
8	1.75%	3.25%	5.00%
9	1.50%	3.25%	4.75%
10	1.25%	3.25%	4.50%
11	1.00%	3.25%	4.25%
12	1.00%	3.25%	4.25%
13	1.00%	3.25%	4.25%
14	1.00%	3.25%	4.25%
15	1.00%	3.25%	4.25%
16	1.00%	3.25%	4.25%
17	1.00%	3.25%	4.25%
18	1.00%	3.25%	4.25%
19	1.00%	3.25%	4.25%
20	1.00%	3.25%	4.25%
21	1.00%	3.25%	4.25%
22	1.00%	3.25%	4.25%
23	1.00%	3.25%	4.25%
24	1.00%	3.25%	4.25%
25	1.00%	3.25%	4.25%
Ref:	663 - -3.25%		

The Teachers’ active head count is assumed to decline 0.25% per year. The open group payroll growth assumption is consequently 3.00% per year (3.25% - 0.25%).

## Valuation Assumptions

### Teachers (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

#### For Members Hired Prior to July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year					
	Male			Female		
	Normal	Early	Early Rule X	Normal	Early	Early Rule X
45			1.00%			1.00%
46			1.00%			1.00%
47			1.00%			1.00%
48			1.00%			1.00%
49			1.00%			1.00%
50		1.00%	1.00%		0.50%	1.00%
51		1.00%	1.00%		0.50%	1.00%
52		1.00%	1.50%		0.50%	1.00%
53		1.00%	2.00%		0.50%	1.00%
54		1.00%	2.00%		1.00%	2.00%
55		1.00%	3.00%		1.50%	5.00%
56		3.50%	7.00%		2.50%	8.00%
57		2.00%	11.00%		3.75%	11.00%
58		8.50%	15.00%		4.50%	14.00%
59		6.00%	19.00%		9.00%	17.00%
60	18.00%			13.00%		
61	19.00%			15.00%		
62	20.00%			19.00%		
63	21.00%			19.00%		
64	22.00%			21.00%		
65	23.00%			25.00%		
66	30.00%			32.00%		
67	25.00%			27.00%		
68	25.00%			27.00%		
69	25.00%			27.00%		
70	100.00%			100.00%		
Ref.	2558	1925	2561	2559	2560	2562

## Valuation Assumptions

### Teachers (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

#### For Members Hired on or After July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year			
	Male		Female	
	Normal	Early	Normal	Early
60		18%		13%
61		19%		15%
62		20%		19%
63		21%		19%
64		22%		21%
65	58%		56%	
66	58%		56%	
67	25%		27%	
68	25%		27%	
69	25%		27%	
70	100%		100%	
Ref.	999	2558	999	2559
	65	60	65	60

## Valuation Assumptions

### Teachers (Concluded)

*Rates of separation from active membership* were as shown below (rates do not apply to members eligible for normal retirement and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	35.0%	31.0%
	1	17.0%	16.0%
	2	14.0%	13.0%
	3	10.0%	11.0%
	4	8.0%	8.0%
25	5+	4.0%	6.0%
30		4.0%	6.0%
35		2.8%	4.2%
40		2.8%	4.2%
45		2.8%	4.2%
50		2.2%	3.3%
55		2.0%	3.0%
60		2.0%	3.0%
Ref.		256	256
		1.00	1.50
		184	996

*Rates of disability* among active members. 67% percent are assumed to be ordinary disability and 33% percent are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Male	Female
20	0.01%	0.00%
25	0.01%	0.00%
30	0.02%	0.00%
35	0.02%	0.01%
40	0.04%	0.04%
45	0.07%	0.06%
50	0.17%	0.11%
55	0.38%	0.35%
Ref	2	66
	0.25	0.75



## Valuation Assumptions

### Police

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefits will be based.

#### Salary Increase Assumptions for an Individual Member

Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	22.00%	3.25%	25.25%
2	15.00%	3.25%	18.25%
3	7.00%	3.25%	10.25%
4	5.00%	3.25%	8.25%
5	3.75%	3.25%	7.00%
6	2.50%	3.25%	5.75%
7	2.00%	3.25%	5.25%
8	1.50%	3.25%	4.75%
9	1.00%	3.25%	4.25%
10	1.00%	3.25%	4.25%
11	1.00%	3.25%	4.25%
12	1.00%	3.25%	4.25%
13	1.00%	3.25%	4.25%
14	1.00%	3.25%	4.25%
15	1.00%	3.25%	4.25%
16	1.00%	3.25%	4.25%
17	1.00%	3.25%	4.25%
18	1.00%	3.25%	4.25%
19	1.00%	3.25%	4.25%
20	1.00%	3.25%	4.25%
21	1.00%	3.25%	4.25%
22	1.00%	3.25%	4.25%
23	1.00%	3.25%	4.25%
24	1.00%	3.25%	4.25%
25	1.00%	3.25%	4.25%
Ref:	665 - -3.25%		

## Valuation Assumptions

### Police (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

(Applying to Eligible Members)

For Members Hired Prior to July 1, 2011 Who Have Vested Status as of January 1, 2012		For Members Hired on or After July 1, 2011 and for Members Hired Prior to July 1, 2011 Who Have Non-Vested Status as of January 1, 2012				
Retirement Ages	% of Active Members Retiring within Next Year	Age 46 with 21 years	Age 47 with 22 years	Age 48 with 23 years	Age 49 with 24 years	Age 50 with 25 years
45	22%					
46	22%	27%				
47	22%	27%	31%			
48	22%	25%	31%	34%		
49	22%	25%	31%	34%	38%	
50	22%	25%	27%	34%	38%	40%
51	22%	22%	27%	31%	38%	40%
52	22%	22%	22%	31%	33%	40%
53	22%	22%	22%	22%	33%	38%
54	22%	22%	22%	22%	22%	38%
55	22%	22%	22%	22%	22%	22%
56	22%	22%	22%	22%	22%	22%
57	22%	22%	22%	22%	22%	22%
58	22%	22%	22%	22%	22%	22%
59	22%	22%	22%	22%	22%	22%
60	22%	22%	22%	22%	22%	22%
61	20%	20%	20%	20%	20%	20%
62	22%	22%	22%	22%	22%	22%
63	22%	22%	22%	22%	22%	22%
64	20%	20%	20%	20%	20%	20%
65	25%	25%	25%	25%	25%	25%
66	50%	50%	50%	50%	50%	50%
67	50%	50%	50%	50%	50%	50%
68	50%	50%	50%	50%	50%	50%
69	50%	50%	50%	50%	50%	50%
70	100%	100%	100%	100%	100%	100%
Ref.	2563 45					

## Valuation Assumptions

### Police (Concluded)

*Rates of separation from active membership* were as shown below (rates do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	25.00%	30.00%
	1	15.00%	20.00%
	2	10.00%	13.00%
	3	7.00%	11.50%
	4	5.00%	10.00%
25	5+	5.88%	5.88%
30		4.93%	4.93%
35		4.13%	4.13%
40		3.45%	3.45%
45		2.83%	2.83%
50		2.40%	2.40%
55		1.98%	1.98%
60		1.60%	1.60%
Ref.		40	40
		0.5	0.5
		16	1008

*Rates of disability* among active members.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Ordinary	Accidental
20	0.03%	0.03%
25	0.03%	0.03%
30	0.03%	0.03%
35	0.07%	0.07%
40	0.16%	0.16%
45	0.28%	0.28%
50	0.45%	0.45%
55	0.67%	0.67%
Ref	35	35
	0.40	0.40

## Valuation Assumptions

### Fire

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefits will be based.

<b>Salary Increase Assumptions for an Individual Member</b>			
<b>Service Index</b>	<b>Merit &amp; Seniority</b>	<b>Base (Economy)</b>	<b>Increase Next Year</b>
1	22.00%	3.25%	25.25%
2	15.00%	3.25%	18.25%
3	7.00%	3.25%	10.25%
4	5.00%	3.25%	8.25%
5	3.75%	3.25%	7.00%
6	2.50%	3.25%	5.75%
7	2.00%	3.25%	5.25%
8	1.50%	3.25%	4.75%
9	1.00%	3.25%	4.25%
10	1.00%	3.25%	4.25%
11	1.00%	3.25%	4.25%
12	1.00%	3.25%	4.25%
13	1.00%	3.25%	4.25%
14	1.00%	3.25%	4.25%
15	1.00%	3.25%	4.25%
16	1.00%	3.25%	4.25%
17	1.00%	3.25%	4.25%
18	1.00%	3.25%	4.25%
19	1.00%	3.25%	4.25%
20	1.00%	3.25%	4.25%
21	1.00%	3.25%	4.25%
22	1.00%	3.25%	4.25%
23	1.00%	3.25%	4.25%
24	1.00%	3.25%	4.25%
25	1.00%	3.25%	4.25%
Ref:	665 - -3.25%		

## Valuation Assumptions

### Fire (Continued)

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

(Applying to Eligible Members)

For Members Hired Prior to July 1, 2011 Who Have Vested Status as of January 1, 2012		For Members Hired on or After July 1, 2011 and for Members Hired Prior to July 1, 2011 Who Have Non-Vested Status as of January 1, 2012				
Retirement Ages	% of Active Members Retiring within Next Year	Age 46 with 21 years	Age 47 with 22 years	Age 48 with 23 years	Age 49 with 24 years	Age 50 with 25 years
45	12%					
46	12%	15%				
47	12%	15%	18%			
48	12%	15%	18%	22%		
49	12%	15%	18%	22%	26%	
50	17%	15%	18%	21%	26%	30%
51	17%	17%	18%	21%	26%	30%
52	17%	17%	17%	21%	21%	30%
53	17%	17%	17%	17%	21%	22%
54	17%	17%	17%	17%	17%	22%
55	22%	22%	22%	22%	22%	22%
56	22%	22%	22%	22%	22%	22%
57	22%	22%	22%	22%	22%	22%
58	22%	22%	22%	22%	22%	22%
59	22%	22%	22%	22%	22%	22%
60	28%	28%	28%	28%	28%	28%
61	28%	28%	28%	28%	28%	28%
62	28%	28%	28%	28%	28%	28%
63	28%	28%	28%	28%	28%	28%
64	28%	28%	28%	28%	28%	28%
65	28%	28%	28%	28%	28%	28%
66	28%	28%	28%	28%	28%	28%
67	28%	28%	28%	28%	28%	28%
68	28%	28%	28%	28%	28%	28%
69	28%	28%	28%	28%	28%	28%
70	100%	100%	100%	100%	100%	100%
Ref.	2564					
	45					

## Valuation Assumptions

### Fire (Concluded)

*Rates of separation from active membership* were as shown below (rates do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	7.75%	7.75%
	1	4.50%	4.50%
	2	3.00%	3.00%
	3	2.75%	2.75%
	4	2.25%	2.25%
25	5 & Over	1.25%	1.25%
30		1.25%	1.25%
35		1.25%	1.25%
40		1.25%	1.25%
45		1.25%	1.25%
50		1.25%	1.25%
55		1.25%	1.25%
60		1.25%	1.25%
Ref.		151	151
		1.25	1.25
		1007	1007

*Rates of disability* among active members.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Ordinary	Accidental
20	0.04%	0.04%
25	0.06%	0.06%
30	0.07%	0.07%
35	0.09%	0.09%
40	0.12%	0.12%
45	0.18%	0.18%
50	0.27%	0.27%
55	0.40%	0.40%
Ref	3	3
	0.35	0.35

## Valuation Assumptions

### **Healthy Mortality**

The standard mortality table for death after retirement is the RP-2014 Healthy Annuitant generational mortality tables for males and females, adjusted for mortality improvements using Scale MP-2015.

Sample Attained Ages	Probability of Dying Next Year*		Future Life Expectancy (years)*	
	Men	Women	Men	Women
35	0.114%	0.107%	50.39	52.96
40	0.168%	0.155%	45.15	47.78
45	0.251%	0.199%	40.01	42.66
50	0.384%	0.264%	35.01	37.62
55	0.559%	0.367%	30.22	32.69
60	0.768%	0.529%	25.65	27.89
65	1.081%	0.797%	21.27	23.27
70	1.662%	1.279%	17.09	18.86
75	2.709%	2.107%	13.25	14.79
80	4.565%	3.573%	9.86	11.16
Ref:	2135	x 1.00	2136	x 1.00

\* Applicable to calendar year 2016. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown are the base table rates prior to using a scaling factor adjustment for each member classification. The scaling factor adjustments can be found on the next page.

This assumption is used to measure the probabilities of each benefit payment being made after retirement.

### **Disabled Mortality**

Disabled pension mortality was based on the RP-2014 Disabled Retiree generational mortality tables for males and females, adjusted for mortality improvements using Scale MP-2015. The probabilities of disabled mortality at sample attained ages were as follows:

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Men	Women
20	0.041%	0.018%
25	0.177%	0.084%
30	0.446%	0.224%
35	0.805%	0.445%
40	1.176%	0.670%
45	1.536%	0.866%
50	1.927%	1.138%
55	2.279%	1.468%
Ref	2137	2138
	1.00	1.00

\* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 projection scale. The rates shown are the base table rates prior to using a scaling factor adjustment for each member classification. The scaling factor adjustments can be found on the next page.

## Valuation Assumptions

### ***Pre-Retirement Mortality***

For active members dying before retirement, the mortality tables are based on the RP-2014 Employee generational mortality tables for males and females, adjusted for mortality improvements using Scale MP-2015. The probabilities of dying prior to retirement at sample attained ages were as follows:

<b>Sample Ages</b>	<b>Probability of Occurrence Next Year*</b>			
	<b>Death Before Retirement</b>			
	<b>Men</b>		<b>Women</b>	
20	0.034%	0.014%		
25	0.042%	0.014%		
30	0.041%	0.021%		
35	0.049%	0.030%		
40	0.058%	0.040%		
45	0.089%	0.062%		
50	0.159%	0.105%		
55	0.272%	0.170%		
Ref	2133	x	1.00	2134 x 1.00

*\* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 projection scale. The rates shown are the base table rates prior to using a scaling factor adjustment for each member classification. The scaling factor adjustments are listed below.*

The weighting of ordinary and accidental deaths by member classification is as follows:

	<b>Employees</b>	<b>Teachers</b>	<b>Police</b>	<b>Fire</b>
Ordinary	98%	98%	50%	50%
Accidental	2%	2%	50%	50%

The scaling factors for each member classification apply to all mortality tables and are as follows:

	<b>Employees</b>	<b>Teachers</b>	<b>Police</b>	<b>Fire</b>
Scale-Male	116%	100%	99%	100%
Scale-Female	124%	87%	106%	101%



## Miscellaneous and Technical Assumptions

<b><i>Administrative &amp; Investment Expenses</i></b>	The investment return assumption is intended to be the return net of investment expenses. Assumed administrative expenses are added to the Normal Cost, and were 0.35% of payroll in the June 30, 2016 valuation.
<b><i>Benefit Service</i></b>	Exact Fractional service is used to determine the amount of benefit payable.
<b><i>COLA</i></b>	None assumed.
<b><i>Decrement Operation</i></b>	Disability and turnover decrements do not operate during normal retirement eligibility for Group I members. They do operate for early retirement for Group I members and during normal retirement for Group II members.
<b><i>Decrement Timing</i></b>	Normal and early retirement decrements for the Teachers group are assumed to occur at the beginning of the year. All other decrements for all groups were assumed to occur mid-year.
<b><i>Eligibility Testing</i></b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b><i>Forfeitures</i></b>	The percent of vested members who quit before retirement who elect to refund and forfeit their pension is assumed to be 25% at first vesting eligibility, grading to 0% at first retirement eligibility.
<b><i>Incidence of Contributions</i></b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
<b><i>Liability Adjustments</i></b>	Normal, early and vesting retirement liabilities are increased by 7.5%, 5.0%, 11.5% and 11.5% for Employees, Teachers, Police and Fire respectively to account for end of career pay increases. Members hired after July 1, 2011 or who have non-vested status as of January 1, 2012 are assumed to have no adjustment for end of career payments.

***Marriage Assumption***

Group I: 60% of males and 60% of females are assumed to be married for purposes of death-in-service benefits. Group II: 60% of males and 60% of females are assumed to be married for purposes of death-in-service and death after retirement benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.

***Normal Form of Benefit***

This valuation assumes that members will elect the normal form of payment. Alternate forms of payment are available and are actuarially adjusted based on the valuation interest and mortality.

Group I: The assumed normal form of benefit is a straight life benefit.

Group II: The assumed normal form of benefit is straight life for single members and joint and 50% survivor for married members.

***Option Factors***

Annuity values and factors are based on a 7.25% interest rate and the RP-2014 Healthy Annuitant mortality tables for males and females, adjusted for improvements using Scale MP-2015. While the tables used in the valuations are based on generational mortality, a static model with five years of projection was used for purposes of determining the option factors.

Unisex mortality was used based on active male/female blends observed in the June 30, 2015 valuation of 39%/61%, 22%/78%, 87%/13% and 97%/3% for Employees, Teachers, Police and Fire, respectively.

Disabled mortality is based on the RP-2014 Disabled Retiree mortality table using a static model with five years of mortality improvement projection.

For the Group I Straight Life factors, the current practice of not reflecting the changing benefit at age 65 is in the factor.

Each option factor is determined on an actuarial equivalent basis.

***Pay Increase Timing***

Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.

***New Entrant Profile***

For purposes of projecting the normal cost to the beginning of the rate setting biennium, the new entrant profile is based on actual members with 3-8 years of service on the valuation date.

***Service Credit Accruals*** It is assumed that members accrue one year of service credit per year.

***Service Purchases*** One month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.

***Split Benefits*** Active members with service in more than one plan are valued as if all service accrued is in their current plan. Split benefits are valued upon retirement, as reported in the data.

***Data Adjustments*** For the June 30, 2016 valuation, new active member pays were annualized.

The NHRS underwent a thorough review of the medical subsidy data. We used the data as submitted without further audit.

***Medical Subsidy*** Actual medical subsidy recipients are included in the valuation plus 25% of those who opted-out. For those members reported as eligible in the future but not currently receiving, we assumed that members would commence benefits at age eligibility.

The solvency rates for the medical subsidy benefits were determined to provide an estimated margin of 20% of the benefits by the end of the first year of the biennium and thereafter.

A retired member's medical subsidy amount is provided by System staff. If the member is under the age of 65, the pre-65 subsidy amount used is the amount reported by System staff, and the post-65 subsidy amount is assumed to be at the post-65 rates.

***IRC Section 415(b) and 401(a)(17)*** For purposes of the valuation, the limitations under IRC Section 401(a)(17) and 415(b) were not reflected due to immateriality.

## Plan Provisions – Group I

<b><i>Statute</i></b>	Amended and Restated under New Hampshire Revised Statutes Annotated (RSA) Chapter 100-A. Most recently amended under legislation passed in the year ending June 30, 2011.
<b><i>Effective Date</i></b>	July 1, 1967
<b><i>Plan Year</i></b>	July 1 through June 30
<b><i>Type of Plan</i></b>	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
<b><i>Eligibility Requirements</i></b>	Any employee or teacher becomes a Group I member as a condition of employment. Membership is optional for elected officials, officials appointed for fixed terms, unclassified state employees or employees of the general court.
<b><i>Creditable Service</i></b>	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
<b><i>Earnable Compensation</i></b>	<p>For members who have attained vested status prior to January 1, 2012, full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity or severance pay, cost of living bonus, additional pay for extracurricular and instructional activities or any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12 month period preceding the final 12 months or the highest compensation year excluding the final 12 months.</p> <p>For active members who begin service on or after July 1, 2011 or who are not in vested status on and after January 1, 2012 – Full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity pay, cost of living bonus, additional pay for extracurricular and instructional activities, and any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax, but excluding other compensation except supplemental pay paid by the employer while the member is receiving workers' compensation and teacher development pay that is not part of the contracted annual salary. Compensation for extra and special duty, as determined by the employer, shall be eliminated for those hired after July 1, 2011 and shall be included but limited during the highest 5 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended.</p>

## Plan Provisions – Group I

Earnable compensation shall not include incentives to encourage members to retire, severance pay, or end-of-career longevity payments and pay for unused sick or vacation time. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12 month period preceding the final 12 months or the highest compensation year excluding the final 12 months. The new definition of earnable compensation is applicable January 1, 2012 for those hired before July 1, 2011 and immediately for those hired on or after July 1, 2011.

### ***Average Final Compensation (AFC)***

Average annual earnable compensation during the highest 3 years of creditable service.

For active members who commenced service on or after July 1, 2011 or who have non-vested status on or after January 1, 2012 – Average annual earnable compensation during the highest 5 years of creditable service.

### ***Service Retirement***

Eligibility: Age 60 years (Age 65 for members commencing service on or after July 1, 2011).

Benefit: A member annuity that is the actuarial equivalent of the member's accumulated contributions plus a state annuity.

Prior to age 65, the state annuity, together with the member annuity, shall be equal to 1/60<sup>th</sup> of AFC times creditable service (1/66<sup>th</sup> of AFC times creditable service for members commencing service on or after July 1, 2011).

After age 65, the state annuity, together with the member annuity, shall be equal to 1/66<sup>th</sup> of AFC times creditable service.

Normal Form: Straight life annuity.

### ***Early Retirement***

Eligibility: Completion of 20 years of creditable service and age plus service at least 70, or attainment of age 50. (Age 60 with 30 years of creditable service for members commencing service on or after July 1, 2011.)

Benefit: Service Retirement Benefit accrued to date of retirement, reduced for each month prior to age 60 by 1/8 of 1% if the member has 35 years or more of creditable service, by 1/4 of 1% if the member has 30 years but less than 35, by 1/3 of 1% if the member has at least 25 years but not 30, by 5/12 of 1% if the member has at least 20 years but not 25, and by 5/9 of 1% if the member has less than 20 years of creditable service

For members commencing service on or after July 1, 2011, normal retirement benefit is reduced 1/4 of 1% for each month prior to age 65.

## Plan Provisions – Group I

### ***Ordinary Disability***

Eligibility: 10 or more years of creditable service.

Benefit: Service Retirement Benefit at attained normal retirement eligibility age. Under age 60, a member annuity plus state annuity that shall be equal to 1.5% times AFC times years of creditable service. The disability retirement allowance shall not be less than 25% of AFC.

### ***Accidental Disability***

Eligibility: Permanently disabled in the performance of duty.

Benefit: Service Retirement Benefit if at least age 60, not less than 50% of AFC. Under age 60, a member annuity plus state annuity that shall be equal to 50% times AFC.

### ***Accidental Death Benefits***

Eligibility: Accidental death in the performance of duty.

Benefit: 50% times AFC.

### ***Ordinary Death Benefits***

Eligibility: Death other than accidental death.

Benefit: If 10 years creditable service or eligible for service retirement, surviving spouse receives 50% of the service retirement benefit until death or remarriage. If no surviving spouse, designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

If less than 10 years creditable service and not eligible for service retirement, the member's spouse or designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

### ***Post Retirement Death***

Not applicable.

### ***Optional Forms***

Each of the following options shall be of equivalent actuarial value to the allowance payable in the absence of election of an option.

- Option 1. Full cash refund.
- Option 2. 100% Joint and Survivor.
- Option 3. 50% Joint and Survivor.
- Option 4. Other Joint and Survivor.

### ***Vested Termination***

If a member terminates with less than 10 years of service, the Member's own contributions are refunded. If a Member terminates with 10 or more years of service, the Member either receives his service retirement or reduced early service retirement benefit beginning at any age after age 50 (age 60 for members hired after July 1, 2011) or the member may apply for a refund of accumulated contributions.

## Plan Provisions – Group I

### ***Maximum Benefit***

For members who hired prior to July 1, 2009, a member's retirement benefit shall not exceed 100% of the member's highest year of earnable compensation. For members who commenced service on or after July 1, 2009 or are non-vested as of January 1, 2012, a member's retirement benefit shall not exceed the lesser of 85% of the member's highest average final compensation or \$120,000.

### ***Refunds***

1. Termination for reasons other than retirement or death and the member has not elected a vested deferred retirement benefit.
2. Upon death in service other than accidental death described above, the member's accumulated contributions are payable to the beneficiary or estate.
3. Upon death prior to age 60 of a member electing vested deferred retirement, the member's accumulated contributions are payable to the beneficiary or estate.
4. Upon death of a retired member prior to electing an optional allowance, any excess of the member's accumulated contributions at retirement over the sum of retirement allowance payments received.

### ***Member Contributions***

7.0% of earnable compensation. Interest on member contributions shall be 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(h) or the actual rate of return, whichever is lower.

### ***Employer Contributions***

As prescribed in RSA 100-A:16.

### ***Temporary Supplemental Allowances***

None.

### ***Other Ancillary Benefits***

There are no ancillary benefits - retirement type benefits not required by statutes but which might be deemed a liability if continued beyond the availability of funding by the current funding source.

## Plan Provisions – Group II

<b><i>Statute</i></b>	Amended and Restated under New Hampshire Revised Statutes Annotated (RSA) Chapter 100-A. Most recently amended under legislation passed in the year ending June 30, 2011.
<b><i>Effective Date</i></b>	July 1, 1967
<b><i>Plan Year</i></b>	July 1 through June 30
<b><i>Type of Plan</i></b>	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
<b><i>Eligibility Requirements</i></b>	Any permanent policeman or permanent fireman becomes a Group II member as a condition of employment.
<b><i>Creditable Service</i></b>	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
<b><i>Earnable Compensation</i></b>	<p>Full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity or severance pay, cost of living bonus, additional pay for extracurricular and instructional activities or for other extra or special duty, and other compensation paid to the member by the employer, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12 month period preceding the final 12 months or the highest compensation year excluding the final 12 months.</p> <p>For active members who begin service on or after July 1, 2011 or who are not in vested status on and after January 1, 2012. Full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity pay, cost of living bonus, additional pay for extracurricular and instructional activities, and any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax, but excluding other compensation except supplemental pay paid by the employer while the member is receiving workers' compensation and teacher development pay that is not part of the contracted annual salary. Compensation for extra and special duty, as determined by the employer, shall be eliminated for those hired after July 1, 2011 and shall be included but limited during the highest 5 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended.</p>



## Plan Provisions – Group II

Earnable compensation shall not include incentives to encourage members to retire, severance pay, or end-of-career longevity payments and pay for unused sick or vacation time. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12 month period preceding the final 12 months or the highest compensation year excluding the final 12 months. The new definition of earnable compensation is applicable January 1, 2012 for those hired before July 1, 2011 and immediately for those hired on or after July 1, 2011.

***Average Final Compensation (AFC)***

Average annual earnable compensation during the highest 3 years of creditable service.

For active members who commenced service on or after July 1, 2011 or who have non-vested status on or after January 1, 2012 – Average annual earnable compensation during the highest 5 years of creditable service.

***Service Retirement***

Eligibility: Age 45 and 20 years of creditable service or age 60 (age 50 with 25 years of creditable service or age 60 for members commencing service on or after July 1, 2011).

Benefit: A member annuity that is the actuarial equivalent of the member’s accumulated contributions plus a state annuity.

The state annuity, together with the member annuity, shall be equal to 2-1/2% of AFC times creditable service up to 40 years (2% of AFC times creditable service up to 42.5 years for members commencing service on or after July 1, 2011. However, a member who commenced service on or after July 1, 2011 shall not receive a service retirement allowance until attaining the age of 52.5, but may receive a reduced allowance after age 50 if the member has at least 25 years of creditable service where the allowance shall be reduced, for each month by which the benefit commencement date precedes the month after which the member attains 52.5 years of age, by ¼ of 1%).

Members hired prior to July 1, 2011 who have non-vested status as of January 1, 2012 shall be subject to the following transition provisions for years of service required for regular service retirement, the minimum age for regular service retirement, and the multiplier used to calculate the retirement annuity, which shall be applicable on January 1, 2012 according to the following table:

<i>Creditable Service on January 1, 2012</i>	<i>Minimum Years of Service</i>	<i>Minimum Age Attained</i>	<i>Annuity Multiplier</i>
(1) Less than 4 years	24 Years	Age 49	2.1%
(2) At least 4 years but less than 6 years	23 Years	Age 48	2.2%
(3) At least 6 years but less than 8 years	22 Years	Age 47	2.3%
(4) At least 8 years but less than 10 years	21 Years	Age 46	2.4%

## Plan Provisions – Group II

A member retiring at age 45 with 20 years of service shall receive a minimum annual service retirement allowance of \$10,000.

Normal Form: straight life annuity (with surviving spouse's benefit payable as described under post-retirement death benefit).

### ***Ordinary Disability***

Eligibility: 10 or more years of creditable service.

Benefit: Service Retirement Benefit. The disability retirement allowance shall not be less than 25% of the member's final compensation at the date of the member's disability.

### ***Accidental Disability***

Eligibility: Permanently disabled in the performance of duty.

Benefit: Members hired prior to July 1, 2011 who have vested status as of January 1, 2012 are eligible for an accidental disability benefit and shall receive a benefit equal to  $\frac{2}{3}$  of AFC. If a member has more than  $26\frac{2}{3}$  years of service, the member will receive a supplemental disability benefit equal to  $2\frac{1}{2}\%$  of AFC times years of creditable service in excess of  $26\frac{2}{3}$  years but not in excess of 40 years.

Members commencing service on or after July 1, 2011 are eligible for an accidental disability benefit and shall receive a benefit equal to  $\frac{2}{3}$  of AFC. If a member has more than  $33\frac{1}{3}$  years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of  $33\frac{1}{3}$  years but not in excess of 42.5 years.

Members hired prior to July 1, 2011 who have non-vested status as of January 1, 2012 are eligible for an accidental disability benefit and shall receive a benefit equal to  $\frac{2}{3}$  of AFC. The calculation of the supplemental allowance shall be as provided in the transition provisions with the number of years for the supplement adjusted proportionally.

### ***Accidental Death Benefits***

Eligibility: Accidental death in the performance of duty.

Benefit: 50% times the member's annual rate of earnable compensation at the date of the member's death.

## Plan Provisions – Group II

### ***Ordinary Death Benefits***

Eligibility: Death other than accidental death.

Benefit: If 10 years creditable service or eligible for service retirement, surviving spouse receives 50% of the service retirement benefit until death or remarriage. If no surviving spouse, designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

If less than 10 years creditable service and not eligible for service retirement, the member's spouse or designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

### ***Post Retirement Death***

Retired prior to April 1, 1987, lump sum of \$3,600 or in the case of accidental disability, 50% of the accidental disability benefit payable to surviving spouse.

Retired on or after April 1, 1987, benefit payable to surviving spouse until death or remarriage equal to 50% of the member's service, ordinary disability or accidental disability retirement allowance plus a lump sum as defined below.

Retired on or after April 1, 1987, but before July 1, 1988, hired before July 1, 1988, lump sum of \$3,600.

Retired on or after July 1, 1988, hired before July 1, 1988, lump sum of \$10,000.

Retired on or after July 1, 1988, hired on or after July 1, 1988 but before July 1, 1993, lump sum of \$3,600.

### ***Optional Forms***

Each of the following options shall be of equivalent actuarial value to the straight life allowance payable in the absence of election of an option.

Option 1. Full cash refund.

Option 2. Not applicable.

Option 3. 50% Joint and Survivor.

Option 4. Other Joint and Survivor, not to exceed 50%.

### ***Vested Termination***

If a member terminates with less than 10 years of service, the Member's own contributions are refunded. If a Member terminates with 10 or more years of service, the Member either receives his service retirement at the age the member would have attained service or reduced early service retirement eligibility requirement, or age 60 or the member may apply for a refund of accumulated contributions.

## Plan Provisions – Group II

### ***Maximum Benefit***

For members who hired prior to July 1, 2009, a member's retirement benefit shall not exceed 100% of the member's highest year of earnable compensation. For members who commenced service on or after July 1, 2009 or are non-vested as of January 1, 2012, a member's retirement benefit shall not exceed the lesser of 85% of the member's highest average final compensation or \$120,000.

### ***Refunds***

1. Termination for reasons other than retirement or death and the member has not elected a vested deferred retirement benefit.
2. Upon death in service other than accidental death described above, the member's accumulated contributions are payable to the beneficiary or estate.
3. Upon death prior to commencement of benefits of a member electing vested deferred retirement, the member's accumulated contributions are payable to the beneficiary or estate.
4. Upon death of a survivor of a member retired on accidental disability with spouse receiving accidental disability survivor benefits, the excess of the member's accumulated contributions at retirement over the sum of payments received.
5. Upon death of a retired member prior to electing an optional allowance, any excess of the member's accumulated contributions at retirement over the sum of retirement allowance payments received.

### ***Member Contributions***

Fire members: 11.80% of earnable compensation.  
Police members: 11.55% of earnable compensation.

Member contributions cease for members who are in vested status before January 1, 2012 with creditable service in excess of 40 years. Member contributions cease for all other Group II members with creditable service in excess of 42.5 years.

Interest on member contributions shall be 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(h) or the actual rate of return, whichever is lower.

### ***Employer Contributions***

As prescribed in RSA 100-A:16.

### ***Temporary Supplemental Allowances***

None.

### ***Other Ancillary Benefits***

There are no ancillary benefits - retirement type benefits not required by statutes but which might be deemed a liability if continued beyond the availability of funding by the current funding source.

## History of Recent Changes in Plan Provisions

### 2014 Legislative Session

#### House Bill No. 1494:

This bill: (1) adds definitions of terms used in RSA 100-A and clarifies existing definitions; (2) revises the procedure for calculating the cost of purchasing credit for certain types of prior service; (3) clarifies the ability to earn service credit while on a salary continuance plan; (4) corrects an inconsistency in the statute regarding the approval date of the comprehensive annual financial report; (5) adds penalties for employers who fail to remit correct data in a timely manner; and (6) repeals obsolete provisions.

### 2012 Legislative Session

- (a) Modifies the calculation of Average Final Compensation (AFC) for members not vested prior to Jan. 1, 2012, by changing the “compensation over base pay” factor used in the AFC formula from a dollar average to a percentage average.
- (b) Clarifies the date from which NHRS must begin calculating a 7-year average of Extra or Special Duty Pay for Group II (Police and Fire) members vested prior to Jan. 1, 2012. This change excludes from the calculation any months prior to July 1, 2009, which is when ESDP began to be separately reported to NHRS.
- (c) Clarifies the number of years of creditable service Group II (Police and Fire) members in service prior to July 1, 2011, but not vested prior to Jan. 1, 2012, must have in order to qualify for the supplemental disability benefit available to eligible Accidental Disability retirees.
- (d) Changes the annual effective date of changes to the member interest rate from a fiscal year to a calendar year.
- (e) Clarifies the definition of “compensation over base pay” for members not vested prior to Jan. 1, 2012.
- (f) Clarifies that the maximum benefit limit for members hired before July 1, 2009, is 100 percent of Earnable Compensation and the maximum benefit limit for members hired after that date, and not vested by Jan. 1, 2012, is the lesser of 85 percent of AFC or \$120,000 per year.
- (g) Modifies the definition of “part-time” for NHRS retirees employed by NHRS-participating employers.
- (h) Changes the date by which NHRS Trustees must approve the retirement system’s Comprehensive Annual Financial Report from Dec. 1 to Dec. 31 of each year.

## History of Recent Changes in Plan Provisions (Continued)

- (i) RSA 100-A:53, II; RSA 100-A:53-e, II; RSA 100-A:16, II(h); and RSA 100-A:16, II(j), relative to the Special Account, are repealed.
- (j) RSA 100-A:16, III-a, commonly known as the employer “spiking” assessment, is repealed.

### **2011 Legislative Session:**

Legislation enacted in the 2011 legislative session is summarized below:

### **House Bill No. 2 as Amended by 2011-2513-CofC:**

- (a) Change the definition of Earnable Compensation for active members who begin service on or after July 1, 2011 or who are not in vested status on and after January 1, 2012.
- (b) For active members who commenced service on or after July 1, 2011 or who have non-vested status on or after January 1, 2012 AFC equals the average annual earnable compensation during the highest 5 years of creditable service.
- (c) For members who commenced service on or after July 1, 2009 or are non-vested as of January 1, 2012, a member’s retirement benefit shall not exceed the lesser of 85% of the member’s highest average final compensation or \$120,000.
- (d) Group I members commencing service on or after July 1, 2011 are eligible to retire at age 65 and are eligible for a reduced annuity at age 60 with 30 years of creditable service. Prior to age 65, the state annuity, together with the member annuity, shall be equal to 1/66th of AFC times creditable service reduced for each month prior to the month after the member attains age 65 by 1/4 of 1%. After age 65, the state annuity, together with the member annuity, shall be equal to 1/66th of AFC times creditable service, reduced for each month prior to the month after the member attains age 65 by 1/4 of 1%.
- (e) Group II members commencing service on or after July 1, 2011 are eligible to retire at age 50 with 25 years of creditable service or age 60. The benefit shall be equal to 2% of AFC times creditable service up to 42.5 years. However, a member who commenced service on or after July 1, 2011 shall not receive a service retirement allowance until attaining the age of 52.5, but may receive a reduced allowance after age 50 if the member has at least 25 years of creditable service where the allowance shall be reduced, for each month by which the benefit commencement date precedes the month after which the member attains 52.5 years of age, by 1/4 of 1%.
- (f) Group II members hired prior to July 1, 2011 who have non-vested status as of January 1, 2012 shall be subject to transition provisions for years of service required for regular service retirement, the minimum age for regular service retirement, and the multiplier used to calculate the retirement annuity, which shall be applicable on January 1, 2012.

## History of Recent Changes in Plan Provisions (Continued)

- (g) Group II members commencing service on or after July 1, 2011 are eligible for an accidental disability benefit and shall receive a benefit equal to  $\frac{2}{3}$  of AFC. If a member has more than  $33\frac{1}{3}$  years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of  $33\frac{1}{3}$  years but not in excess of 42.5 years.
- (h) *Member Contributions*  
Group I members: 7.0% of earnable compensation.  
Group II fire members: 11.80% of earnable compensation.  
Group II police members: 11.55% of earnable compensation.  
Group II member contributions cease for members who are in vested status before January 1, 2012 with creditable service in excess of 40 years. Member contributions cease for all other Group II members with creditable service in excess of 42.5 years.
- (i) *Medical Subsidy* – After July 1, 2007 and including each July 1, thereafter, the rate payable shall not be increased.
- (j) Interest on the individual accounts of members in the member annuity savings fund shall be credited interest at 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(h) or the actual rate of return, whichever is lower for the immediately preceding fiscal year as reported in the CAFR as approved and accepted by the board of trustees by December 1, of each year, provided the rate shall not be less than zero.
- (k) Any retired member who is receiving a medical subsidy under RSA 100-A:52 or RSA 100-A:52-a shall be entitled to receive an additional supplemental allowance. The amount of the additional temporary supplemental allowance shall be \$500 for retirees taking a one-person medical benefit and \$1,000 for retirees taking a 2-person medical benefit, paid from the respective component of the reserve for TSAs. The supplemental allowance shall apply only for the fiscal years beginning July 1, 2008 up to and including the fiscal year beginning July 1, 2012.
- (l) Transfer the balance in each special account component (Employees, Teachers, Police and Fire) to the corresponding components of the State annuity accumulation fund except for funds necessary to comply with RSA 100-A:41-d, III as amended.

## History of Recent Changes in Plan Provisions (Concluded)

### 2010 Legislative Session:

Legislation enacted in the 2010 legislative session is summarized below:

- (a) **Special Session House Bill No. 1: COLA, TSA approved** - Provides cost-of-living adjustments (COLAs) and temporary supplemental allowances (TSAs) for eligible retirees or beneficiaries;
- (b) **Senate Bill 504: “Spiking” provision deferred** - Extends the effective date of the 2008 legislation creating the so-called “spiking” provision (125% assessment) from July 1, 2010 to July 1, 2011. A study commission continues to evaluate proposals for the assessment methodology;
- (c) **House Bill 1668: State medical subsidy insurance for Group II members [RSA 21-I30]** - Requires Group II (Police and Fire) members whose service with a state agency or department began on or after July 1, 2010, complete at least 20 years of creditable service with the state in order to qualify for post-retirement state medical subsidy insurance coverage.



## Medical Subsidy Plan Provisions

Subsidy Benefits as of July 1, 2007 and thereafter are as follows:

	<b>Monthly Amounts</b>	
	<b>Pre-65</b>	<b>Post-65</b>
<b>Single</b>	\$375.56	\$236.84
<b>Couple</b>	\$751.12	\$473.68

The above amounts will not increase.

The following Group I members and their qualified spouses are eligible for coverage under the postretirement medical plan:

- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008, on Service, Early Service or Ordinary Disability, have at least 20 years of credited service as of July 1, 2008 and who actually retire on or before July 1, 2009 would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008, on Vested Deferred retirement and who actually retire on or before July 1, 2009 would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who retired on Accidental Disability Retirement on or before July 1, 2004.
- Employee members of the State who retired on or before July 1, 2004, on Service, Ordinary Disability or Vested Deferred Retirement would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008 and who actually retire on or before July 1, 2009, on Service, Early Service, Vested Deferred or Ordinary Disability retirement after completing at least 20 years of creditable service and who subsequently attain age 60 or after completing at least 30 years of creditable service and who subsequently attain age 55.
- Surviving spouses of deceased Employee and Teacher members of political subdivisions who die while in service and would otherwise have been eligible for a medical subsidy benefit, provided that such surviving spouse was covered as the member's spouse in the employer-sponsored plan before the member's death and is entitled to a monthly allowance under Accidental Death, Ordinary Death, or an Optional Allowance.
- Surviving spouses and children of Employee and Teacher members of political subdivisions who die as the natural and proximate result of injuries suffered while in the performance of duty. Eligibility for the medical subsidy ceases when the dependent child attains age 18, or age 23 if attending school on a full-time basis.

## Medical Subsidy Plan Provisions (Concluded)

- Surviving spouses and children of Employee members of the State who died as the natural and proximate result of injuries suffered while in the performance of duty. Payment of the subsidy ceases when the dependent child attains age 18 or age 23, if attending school on a full-time basis.
- Vested terminated Employee members of the State (and spouses) who completed at least 20 years of creditable service and prior to July 1, 2004 receives an allowance and who subsequently attains age 60.
- Employee members of the State (and spouses) who retire after completing at least 20 years of creditable service and who subsequently attains age 60 before July 1, 2004 or after completing at least 30 years of creditable service and who subsequently attains age 55 before July 1, 2004.
- Surviving spouses of deceased Employee members of the State who died while in service on or before July 1, 2004, provided that such surviving spouse was covered as the member's spouse in the employer-sponsored plan before the member's death and is entitled to a monthly allowance under Accidental Death, Ordinary Death, or an Optional Allowance.
- Any certifiably dependent child with a disability living in the household and being cared for by the qualified retired member, member's spouse, or qualified surviving spouse would also qualify.

The following Group II members are eligible for the postretirement medical premium subsidy:

- Active or Retired Group II police officer members (or beneficiaries) as of June 30, 2000.
- Active or Retired Group II firefighter members (or beneficiaries) as of June 30, 2000.
- Persons who prior to July 1, 1988 had completed at least 20 years of Group II service and are eligible as of July 1, 1993 for a vested deferred retirement benefit.
- Group II members retired as of July 1, 1991 with a split benefit under RSA 100-A:19-c who have at least 10 years of Group II service.
- Group II members as of June 30, 2005 who subsequently became disabled while in the performance of duty at any time in the future.
- Surviving spouses of deceased Group II members who retired prior to April 1, 1987 and who are not receiving a monthly allowance.

The System subsidy covers the retired member's spouse and any of the retired member's certifiably dependent and disabled children.

It is the legislative intent that future members shall be included only to the extent that the total cost can be terminally funded.

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**SECTION D**

STATISTICAL SECTION

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**Historical Membership Data - Retired  
(Dollars in Thousands)**

Fiscal Year	Added to Rolls		Removed from Rolls		Rolls End of Year		Average Annual	Average Annual
	No.**	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances	Annual Allowances	% Increase in Annual Allowances
2007	3,211	\$ 73,490	913	\$ 12,081	21,248	\$ 357,763	\$ 16,837	N/A
2008	2,216	53,600	594	10,923	22,870	400,440	17,509	3.99%
2009	2,152	51,234	521	8,349	24,501	443,325	18,094	3.34%
2010	2,161	50,732	817	12,002	25,845	482,055	18,652	3.08%
2011	1,965	42,344	680	10,051	27,130	514,348	18,959	1.65%
2012	2,073	41,213	749	11,543	28,454	544,018	19,119	0.84%
2013	2,153	43,865	878	14,738	29,729	573,145	19,279	0.84%
2014	2,105	42,200	780	12,676	31,054	602,669	19,407	0.66%
2015 #	2,731	54,769	2,435	20,416	31,350	637,022	20,320	4.70%
2016	2,208	53,489	782	12,236	32,776	678,275	20,694	1.84%

\* Includes additional COLA allowances. The benefit amounts shown are the monthly benefits as of the valuation date annualized and are not the actual benefits paid during the fiscal year.

\*\* Includes beneficiaries in receipt but excludes deferred vested terminations.

# As part of a data cleaning process, some records for individual participants were merged into one record; others were split to reflect split benefits.

## Retirees and Beneficiaries Age Distribution Employees

### SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
40 - 44		\$ -	\$ -	1	\$ 1,373	\$ 1,373
45 - 49	21	122,041	5,811	11	127,384	11,580
50 - 54	71	857,709	12,080	64	795,395	12,428
55 - 59	232	4,389,028	18,918	280	5,218,190	18,636
60 - 64	917	21,196,404	23,115	1,224	21,303,188	17,405
65 - 69	1,585	28,846,885	18,200	2,277	30,003,621	13,177
70 - 74	1,290	19,895,039	15,423	1,680	18,636,033	11,093
75 - 79	788	10,735,574	13,624	1,040	9,962,682	9,580
80 - 84	574	7,765,219	13,528	704	6,277,015	8,916
85 - 89	275	3,629,230	13,197	395	3,031,747	7,675
90 - 94	119	1,318,114	11,077	181	1,385,724	7,656
95 - 99	17	116,057	6,827	28	149,026	5,322
100 & Over	1	3,215	3,215	8	43,937	5,492
<b>TOTAL</b>	<b>5,890</b>	<b>\$ 98,874,515</b>	<b>\$ 16,787</b>	<b>7,893</b>	<b>\$ 96,935,315</b>	<b>\$ 12,281</b>

### DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
30 - 34	1	\$ 13,901	\$ 13,901		\$ -	\$ -
35 - 39				5	73,016	14,603
40 - 44	3	48,099	16,033	6	80,155	13,359
45 - 49	14	219,612	15,687	14	165,695	11,835
50 - 54	45	647,712	14,394	43	573,535	13,338
55 - 59	75	1,095,996	14,613	92	1,081,209	11,752
60 - 64	87	1,274,357	14,648	109	1,431,955	13,137
65 - 69	93	1,260,375	13,552	107	1,245,577	11,641
70 - 74	60	873,239	14,554	67	820,770	12,250
75 - 79	29	336,339	11,598	30	416,895	13,897
80 - 84	12	143,195	11,933	12	178,446	14,871
85 - 89	5	83,052	16,610	6	62,923	10,487
90 - 94	2	23,256	11,628			
95 - 99				1	20,296	20,296
100 & Over						
<b>TOTAL</b>	<b>426</b>	<b>\$ 6,019,133</b>	<b>\$ 14,129</b>	<b>492</b>	<b>\$ 6,150,472</b>	<b>\$ 12,501</b>

## Retirees and Beneficiaries Age Distribution Employees

### BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
Under 20	1	\$ 1,774	\$ 1,774	1	\$ 1,774	\$ 1,774
20 - 24				4	16,005	4,001
25 - 29	2	5,524	2,762	1	1,774	1,774
30 - 34	2	6,039	3,020	1	3,473	3,473
35 - 39	2	6,039	3,020	5	23,341	4,668
40 - 44	5	31,116	6,223	7	39,184	5,598
45 - 49	6	23,876	3,979	15	82,436	5,496
50 - 54	13	55,792	4,292	21	124,034	5,906
55 - 59	14	88,231	6,302	56	667,117	11,913
60 - 64	30	155,489	5,183	87	936,880	10,769
65 - 69	35	245,279	7,008	153	1,906,874	12,463
70 - 74	39	377,894	9,690	166	2,188,421	13,183
75 - 79	35	238,261	6,807	194	2,268,207	11,692
80 - 84	23	125,517	5,457	223	2,567,125	11,512
85 - 89	24	211,226	8,801	167	1,876,436	11,236
90 - 94	8	43,919	5,490	84	734,130	8,740
95 - 99				15	88,353	5,890
100 & Over				2	8,852	4,426
<b>TOTAL</b>	<b>239</b>	<b>\$ 1,615,976</b>	<b>\$ 6,761</b>	<b>1,202</b>	<b>\$ 13,534,416</b>	<b>\$ 11,260</b>

## Retirees and Beneficiaries Age Distribution Teachers

### SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
45 - 49				1	\$ 10,742	\$ 10,742
50 - 54	8	\$ 145,529	\$ 18,191	30	537,412	17,914
55 - 59	55	1,392,795	25,324	217	4,956,470	22,841
60 - 64	442	13,169,633	29,796	1,429	37,138,355	25,989
65 - 69	1,031	27,450,506	26,625	2,708	65,320,308	24,121
70 - 74	727	17,426,471	23,970	1,601	33,258,368	20,773
75 - 79	357	8,793,833	24,633	781	15,213,151	19,479
80 - 84	261	6,448,305	24,706	469	9,171,089	19,555
85 - 89	103	2,255,499	21,898	227	4,187,599	18,448
90 - 94	20	372,863	18,643	119	1,832,047	15,395
95 - 99	4	63,704	15,926	42	564,348	13,437
100 & Over				12	126,817	10,568
<b>TOTAL</b>	<b>3,008</b>	<b>\$ 77,519,138</b>	<b>\$ 25,771</b>	<b>7,636</b>	<b>\$ 172,316,706</b>	<b>\$ 22,566</b>

### DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
40 - 44	1	\$ 13,728	\$ 13,728	1	\$ 12,356	\$ 12,356
45 - 49	1	19,647	19,647	4	65,025	16,256
50 - 54	3	61,469	20,490	12	165,472	13,789
55 - 59	4	64,124	16,031	21	390,957	18,617
60 - 64	4	57,837	14,459	27	504,289	18,677
65 - 69	8	112,161	14,020	33	594,796	18,024
70 - 74	11	268,703	24,428	25	423,546	16,942
75 - 79	3	56,278	18,759	15	248,733	16,582
80 - 84	8	156,261	19,533	4	83,639	20,910
85 - 89	2	20,797	10,399	4	54,151	13,538
90 - 94				2	22,157	11,079
95 - 99				1	10,841	10,841
100 & Over						
<b>TOTAL</b>	<b>45</b>	<b>\$ 831,005</b>	<b>\$ 18,467</b>	<b>149</b>	<b>\$ 2,575,962</b>	<b>\$ 17,288</b>

## Retirees and Beneficiaries Age Distribution Teachers

### BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
30 - 34	1	\$ 4,741	\$ 4,741	2	\$ 21,217	\$10,609
35 - 39	3	30,101	10,034	2	14,411	7,206
40 - 44	4	53,447	13,362	2	6,400	3,200
45 - 49	6	52,909	8,818	4	40,970	10,243
50 - 54	7	58,183	8,312	4	28,949	7,237
55 - 59	8	63,153	7,894	18	353,652	19,647
60 - 64	19	293,103	15,426	30	483,199	16,107
65 - 69	35	616,142	17,604	74	1,561,618	21,103
70 - 74	38	596,845	15,706	65	1,454,758	22,381
75 - 79	34	566,873	16,673	65	1,622,057	24,955
80 - 84	23	411,395	17,887	59	1,287,127	21,816
85 - 89	11	160,891	14,626	26	510,379	19,630
90 - 94	7	123,229	17,604	16	187,969	11,748
95 - 99				8	103,187	12,898
100 & Over				1	13,847	13,847
<b>TOTAL</b>	<b>196</b>	<b>\$3,031,012</b>	<b>\$15,464</b>	<b>376</b>	<b>\$7,689,740</b>	<b>\$20,451</b>



## Retirees and Beneficiaries Age Distribution Police

### SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
40 - 44				10	\$ 90,326	\$ 9,033
45 - 49	197	\$ 9,964,289	\$ 50,580	44	1,360,067	30,911
50 - 54	385	20,362,185	52,889	71	1,760,322	24,793
55 - 59	449	22,199,577	49,442	84	2,028,919	24,154
60 - 64	420	18,009,242	42,879	84	1,729,287	20,587
65 - 69	384	14,731,447	38,363	68	1,197,701	17,613
70 - 74	240	7,709,406	32,123	50	608,425	12,169
75 - 79	156	4,646,147	29,783	18	315,116	17,506
80 - 84	77	2,041,930	26,519	15	239,703	15,980
85 - 89	35	1,017,966	29,085	4	46,317	11,579
90 - 94	4	100,161	25,040	2	46,192	23,096
95 - 99	2	73,523	36,762	1	5,901	5,901
100 & Over						
<b>TOTAL</b>	<b>2,349</b>	<b>\$ 100,855,873</b>	<b>\$ 42,936</b>	<b>451</b>	<b>\$ 9,428,276</b>	<b>\$ 20,905</b>

### DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
25 - 29				1	\$ 9,349	\$ 9,349
30 - 34	1	\$ 31,479	\$ 31,479	1	40,235	40,235
35 - 39	9	331,425	36,825	3	98,427	32,809
40 - 44	13	454,231	34,941	3	120,121	40,040
45 - 49	33	1,366,094	41,397	4	155,253	38,813
50 - 54	45	1,538,646	34,192	9	311,226	34,581
55 - 59	40	1,316,425	32,911	11	326,517	29,683
60 - 64	50	1,613,593	32,272	6	135,595	22,599
65 - 69	47	1,422,331	30,262	12	324,464	27,039
70 - 74	39	1,186,122	30,413	5	95,040	19,008
75 - 79	16	429,007	26,813			
80 - 84	9	252,378	28,042	1	12,357	12,357
85 - 89	3	61,971	20,657			
90 - 94						
95 - 99	2	24,381	12,191			
100 & Over						
<b>TOTAL</b>	<b>307</b>	<b>\$ 10,028,083</b>	<b>\$ 32,665</b>	<b>56</b>	<b>\$ 1,628,584</b>	<b>\$ 29,082</b>

## Retirees and Beneficiaries Age Distribution Police

### BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
20 - 24	2	\$ 25,681	\$ 12,841			
25 - 29	2	22,135	11,068			
30 - 34				1	\$ 11,314	\$ 11,314
35 - 39				3	29,874	9,958
45 - 49	2	12,272	6,136	9	173,375	19,264
50 - 54	3	49,528	16,509	17	444,025	26,119
55 - 59	4	46,534	11,634	34	704,448	20,719
60 - 64	4	91,219	22,805	43	934,837	21,740
65 - 69	5	70,290	14,058	67	1,400,764	20,907
70 - 74	2	34,094	17,047	65	1,116,735	17,181
75 - 79	2	7,981	3,991	71	894,503	12,599
80 - 84	3	21,970	7,323	51	759,248	14,887
85 - 89	2	20,243	10,122	44	474,982	10,795
90 - 94				21	305,178	14,532
95 - 99				6	62,805	10,468
100 & Over	1	12,498	12,498	2	22,988	11,494
<b>TOTAL</b>	<b>32</b>	<b>\$ 414,445</b>	<b>\$ 12,951</b>	<b>434</b>	<b>\$ 7,335,076</b>	<b>\$ 16,901</b>

## Retirees and Beneficiaries Age Distribution Fire

<b>SERVICE RETIREMENTS</b>						
<b>Age Group</b>	<b>Males</b>			<b>Females</b>		
	<b>Number</b>	<b>Amount</b>	<b>Average</b>	<b>Number</b>	<b>Amount</b>	<b>Average</b>
40 - 44				1	\$ 3,605	\$ 3,605
45 - 49	47	\$ 2,269,052	\$48,278	10	175,793	17,579
50 - 54	125	6,824,955	54,600	21	429,316	20,444
55 - 59	200	11,700,063	58,500	25	353,278	14,131
60 - 64	270	13,192,230	48,860	30	423,144	14,105
65 - 69	166	7,593,899	45,746	11	189,075	17,189
70 - 74	114	4,509,988	39,561	7	99,977	14,282
75 - 79	71	2,598,447	36,598	3	47,821	15,940
80 - 84	45	1,200,014	26,667			
85 - 89	22	566,827	25,765	1	25,849	25,849
90 - 94	7	199,732	28,533			
95 - 99						
100 & Over						
<b>TOTAL</b>	<b>1,067</b>	<b>\$50,655,207</b>	<b>\$47,474</b>	<b>109</b>	<b>\$1,747,858</b>	<b>\$16,035</b>

<b>DISABILITY RETIREMENTS</b>						
<b>Age Group</b>	<b>Males</b>			<b>Females</b>		
	<b>Number</b>	<b>Amount</b>	<b>Average</b>	<b>Number</b>	<b>Amount</b>	<b>Average</b>
25 - 29		\$ -	\$ -			
30 - 34	1	19,303	19,303			
35 - 39	1	47,792	47,792			
40 - 44	4	111,607	27,902			
45 - 49	9	357,213	39,690			
50 - 54	12	444,183	37,015	3	\$ 91,038	\$ 30,346
55 - 59	15	479,839	31,989	1	40,899	40,899
60 - 64	19	610,422	32,127	1	26,454	26,454
65 - 69	13	423,683	32,591			
70 - 74	16	456,480	28,530			
75 - 79	19	485,189	25,536			
80 - 84	6	156,660	26,110			
85 - 89	4	121,310	30,328			
90 - 94						
95 - 99	1	18,993	18,993			
100 & Over						
<b>TOTAL</b>	<b>120</b>	<b>\$3,732,674</b>	<b>\$31,106</b>	<b>5</b>	<b>\$158,391</b>	<b>\$31,678</b>

## Retirees and Beneficiaries Age Distribution Fire

### BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
Under 20	1	\$ 5,913	\$ 5,913			
25 - 29	1	5,913	5,913	1	\$ 5,913	\$ 5,913
40 - 44	1	13,198	13,198			
45 - 49	3	25,983	8,661	2	80,834	40,417
50 - 54				4	48,313	12,078
55 - 59	2	6,780	3,390	26	422,390	16,246
60 - 64	1	2,783	2,783	22	497,296	22,604
65 - 69				43	905,052	21,048
70 - 74				42	862,473	20,535
75 - 79	1	15,853	15,853	37	570,927	15,430
80 - 84				30	545,889	18,196
85 - 89	1	13,405	13,405	44	729,832	16,587
90 - 94	1	25,074	25,074	27	358,017	13,260
95 - 99				4	55,780	13,945
100 & Over						
<b>TOTAL</b>	<b>12</b>	<b>\$114,902</b>	<b>\$9,575</b>	<b>282</b>	<b>\$5,082,716</b>	<b>\$18,024</b>

### Active Members by Valuation Division

Valuation Group	Active Members	Valuation Payroll	Average		
			Age	Service*	Pay
Employees:					
Male	9,543	\$ 494,193,613	48.8	11.6	\$51,786
Female	14,977	642,257,827	49.4	11.0	42,883
Total	24,520	1,136,451,440	49.2	11.2	46,348
Teachers:					
Male	3,876	245,238,773	45.8	14.0	63,271
Female	13,908	820,382,232	46.3	13.4	58,986
Total	17,784	1,065,621,005	46.2	13.5	59,920
Police:					
Male	3,588	247,593,098	39.2	11.3	69,006
Female	551	32,984,041	39.0	9.3	59,862
Total	4,139	280,577,139	39.2	11.0	67,789
Fire:					
Male	1,585	116,053,304	41.3	13.2	73,220
Female	41	2,700,718	42.4	12.5	65,871
Total	1,626	118,754,022	41.4	13.2	73,034
Total:					
Male	18,592	1,103,078,788	45.7	12.2	59,331
Female	29,477	1,498,324,818	47.7	12.1	50,830
Grand Total	48,069	\$2,601,403,606	46.9	12.1	\$54,118

\* One month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.

Valuation Group	Active Members	Valuation Payroll
Employees:		
State	9,825	\$ 516,807,724
Political Subdivisions	14,695	619,643,716
Subtotal	24,520	1,136,451,440
Teachers:	17,784	1,065,621,005
Police:		
State	1,042	73,760,066
Political Subdivisions	3,097	206,817,073
Subtotal	4,139	280,577,139
Fire:		
State	62	3,791,263
Political Subdivisions	1,564	114,962,759
Subtotal	1,626	118,754,022
Total	48,069	\$ 2,601,403,606

## Active Members Age and Service Distribution

### Employees June 30, 2016

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	24							24	\$ 549,948
20-24	571	3						574	15,911,789
25-29	1,112	179	6					1,297	43,976,924
30-34	974	491	194	1				1,660	66,853,531
35-39	834	471	428	160	1			1,894	85,052,366
40-44	807	478	430	326	75	4		2,120	99,464,004
45-49	961	693	604	510	269	174	19	3,230	155,006,023
50-54	992	834	853	617	372	347	178	4,193	202,656,681
55-59	888	857	978	740	434	367	358	4,622	224,019,898
60-64	520	548	739	634	371	321	314	3,447	170,687,373
65-69	134	221	285	224	114	118	92	1,188	60,122,550
70+	32	40	64	53	24	22	36	271	12,150,353
<b>TOTAL</b>	<b>7,849</b>	<b>4,815</b>	<b>4,581</b>	<b>3,265</b>	<b>1,660</b>	<b>1,353</b>	<b>997</b>	<b>24,520</b>	<b>\$ 1,136,451,440</b>

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

Age: 49.2 years  
 Service: 11.2 years  
 Annual Pay: \$46,348

## Active Members Age and Service Distribution

### Teachers June 30, 2016

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19									\$ -
20-24	191							191	6,873,176
25-29	1,132	168						1,300	53,314,080
30-34	626	1,078	212					1,916	92,330,670
35-39	461	655	1,051	199	3			2,369	131,929,379
40-44	349	395	618	762	74			2,198	134,526,521
45-49	382	457	472	610	426	60	1	2,408	150,154,150
50-54	230	370	458	469	311	371	83	2,292	146,181,306
55-59	144	253	462	530	313	310	484	2,496	166,698,799
60-64	68	140	271	442	282	259	487	1,949	136,185,259
65-69	11	58	73	126	100	83	132	583	41,501,276
70+	3	6	11	13	14	8	27	82	5,926,389
<b>TOTAL</b>	<b>3,597</b>	<b>3,580</b>	<b>3,628</b>	<b>3,151</b>	<b>1,523</b>	<b>1,091</b>	<b>1,214</b>	<b>17,784</b>	<b>\$ 1,065,621,005</b>

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

Age: 46.2 years  
Service: 13.5 years  
Annual Pay: \$59,920

## Active Members Age and Service Distribution

### Police June 30, 2016

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	2							2	\$ 58,628
20-24	213							213	8,874,764
25-29	526	104	1					631	32,871,353
30-34	220	332	114					666	42,783,327
35-39	102	138	297	106				643	45,873,242
40-44	56	87	173	286	96	6		704	53,898,046
45-49	51	53	105	195	148	51	1	604	46,154,633
50-54	36	46	62	78	70	66	17	375	28,671,462
55-59	14	13	44	39	30	23	23	186	13,839,751
60-64	8	14	21	12	14	10	6	85	5,571,074
65-69	3	4	6	6	4	2	3	28	1,771,383
70+						1	1	2	209,476
<b>TOTAL</b>	<b>1,231</b>	<b>791</b>	<b>823</b>	<b>722</b>	<b>362</b>	<b>159</b>	<b>51</b>	<b>4,139</b>	<b>\$ 280,577,139</b>

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

Age: 39.2 years  
Service: 11.0 years  
Annual Pay: \$67,789



## Active Members Age and Service Distribution

### Fire June 30, 2016

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19									\$ -
20-24	50							50	2,328,872
25-29	118	46						164	9,058,346
30-34	89	99	54					242	15,080,837
35-39	28	62	97	47	1			235	16,877,095
40-44	19	29	88	92	22	1		251	18,867,029
45-49	7	32	78	106	74	35	1	333	26,836,996
50-54	5	18	34	48	27	63	21	216	18,042,884
55-59	5	3	18	17	10	19	24	96	8,290,638
60-64	3	2	4	11	3	6	7	36	3,198,749
65-69		2	1					3	172,576
70+									
<b>TOTAL</b>	<b>324</b>	<b>293</b>	<b>374</b>	<b>321</b>	<b>137</b>	<b>124</b>	<b>53</b>	<b>1,626</b>	<b>\$ 118,754,022</b>

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

Age: 41.4 years  
Service: 13.2 years  
Annual Pay: \$73,034

## Active Members Age and Service Distribution

**Total  
June 30, 2016**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	26							26	\$ 608,576
20-24	1,025	3						1,028	33,988,601
25-29	2,888	497	7					3,392	139,220,703
30-34	1,909	2,000	574	1				4,484	217,048,365
35-39	1,425	1,326	1,873	512	5			5,141	279,732,082
40-44	1,231	989	1,309	1,466	267	11		5,273	306,755,600
45-49	1,401	1,235	1,259	1,421	917	320	22	6,575	378,151,802
50-54	1,263	1,268	1,407	1,212	780	847	299	7,076	395,552,333
55-59	1,051	1,126	1,502	1,326	787	719	889	7,400	412,849,086
60-64	599	704	1,035	1,099	670	596	814	5,517	315,642,455
65-69	148	285	365	356	218	203	227	1,802	103,567,785
70+	35	46	75	66	38	31	64	355	18,286,218
<b>TOTAL</b>	<b>13,001</b>	<b>9,479</b>	<b>9,406</b>	<b>7,459</b>	<b>3,682</b>	<b>2,727</b>	<b>2,315</b>	<b>48,069</b>	<b>\$ 2,601,403,606</b>

*While not used in the financial computations, the following group averages are computed and shown because of their general interest.*

Age: 46.9 years  
 Service: 12.1 years  
 Annual Pay: \$54,118

## Historical Membership Data - Active

### Total

Valuation Date	Active Members		Covered Payroll		Average Salary		Average	
	No.	% Inc.*	\$ Amount	% Inc.*	\$ Amount	% Inc.*	Age	Service
2007	50,802	(0.3%)	\$ 2,195,339,382	3.6%	\$ 43,214	3.9%	45.6	10.6
2008	50,988	0.2%	2,308,320,669	5.1%	45,272	4.8%	45.7	10.6
2009	51,032	0.0%	2,448,287,042	6.1%	47,976	6.0%	46.0	10.9
2010	50,467	(0.6%)	2,481,383,620	1.4%	49,168	2.5%	46.3	11.1
2011	49,738	(0.7%)	2,517,779,470	1.5%	50,621	3.0%	46.6	11.4
2012	48,625	(1.1%)	2,487,757,437	(1.2%)	51,162	1.1%	46.9	11.8
2013	48,688	0.1%	2,501,741,708	0.6%	51,383	0.4%	47.0	12.0
2014	48,307	(0.4%)	2,507,898,809	0.2%	51,916	1.0%	47.1	12.1
2015	47,812	(0.5%)	2,575,031,210	2.7%	53,857	3.7%	47.0	12.1
2016	48,069	0.3%	2,601,403,606	1.0%	54,118	0.5%	46.9	12.1

\* Average annual increase.

### By Valuation Group (Valuation Payroll in Thousands)

	Fiscal Year	Active Members#	Valuation Payroll	Average Compensation	% Inc.*
Employees	2016	24,520	\$1,136,451	\$46,348	(0.14)%
Teachers		17,784	1,065,621	59,920	1.15 %
Police		4,139	280,577	67,789	1.21 %
Fire		1,626	118,754	73,034	0.15 %
Total		48,069	\$2,601,403	\$54,118	0.48 %

	Fiscal Year	Active Members#	Valuation Payroll	Average Compensation	% Inc.*
Employees	2015	24,298	\$1,127,766	\$46,414	4.66 %
Teachers		17,732	1,050,447	59,240	3.06 %
Police		4,174	279,555	66,975	3.15 %
Fire		1,608	117,263	72,925	2.07 %
Total		47,812	\$2,575,031	\$53,857	3.74 %

# Excludes temporary inactive members.

\* Average annual increase.

## Summary of Membership Data by Category

	June 30	
	2016	2015
<b>Active Members</b>		
Number	48,069	47,812
Average age (years)	46.9	47.0
Average service* (years)	12.1	12.2
Average salary	\$54,118	\$53,857
Total payroll supplied, annualized	\$ 2,601,403,606	\$ 2,575,031,210
<b>Vested Inactive Members</b>		
Number	1,785	1,999
Average age (years)	52	52
<b>Non-Vested Inactive Members</b>		
Number	9,528	8,690
<b>Service Retirees</b>		
Number	28,403	27,114
Average age (years)	70	69
Total annual benefits	\$ 608,332,888	\$ 570,043,185
Average annual benefit	\$ 21,418	\$ 21,024
<b>Disability Retirees</b>		
Number	1,600	1,586
Average age (years)	64	63
Total annual benefits	\$ 31,124,304	\$ 30,483,173
Average annual benefit	\$ 19,453	\$ 19,220
<b>Beneficiaries</b>		
Number	2,773	2,650
Average age (years)	74	74
Total annual benefits	\$ 38,818,283	\$ 36,495,210
Average annual benefit	\$ 13,999	\$ 13,772
<b>Total Covered Lives</b>	<b>92,158</b>	<b>89,851</b>

*\* For 2016, one month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.*

## Other Schedules of Interest

### Schedule of Average Pension Benefit Payment Amounts as of June 30, 2016

Service	Employees							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Total annual benefit	\$ 4,692,681	\$ 9,410,808	\$ 30,506,167	\$ 29,541,492	\$ 37,895,415	\$ 31,921,599	\$ 79,161,665	\$ 223,129,827
Average annual benefit	\$ 3,724	\$ 5,516	\$ 7,613	\$ 11,481	\$ 15,038	\$ 21,084	\$ 30,898	\$ 13,823
Average monthly benefit	\$ 310	\$ 460	\$ 634	\$ 957	\$ 1,253	\$ 1,757	\$ 2,575	\$ 1,152
Average final compensation	\$ 42,832	\$ 42,359	\$ 41,637	\$ 47,544	\$ 49,410	\$ 56,267	\$ 65,846	\$ 49,468
Number of retired members	1,260 *	1,706	4,007	2,573	2,520	1,514	2,562	16,142 **

\* Includes 292 members who did not have service reported.

\*\* Includes 5,892 members who did not have AFC reported.

Service	Teachers							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Total annual benefit	\$ 1,664,047	\$ 2,340,720	\$ 12,890,947	\$ 19,684,600	\$ 42,157,045	\$ 47,739,171	\$ 137,487,033	\$ 263,963,563
Average annual benefit	\$ 5,986	\$ 7,029	\$ 9,065	\$ 14,316	\$ 19,508	\$ 25,166	\$ 34,860	\$ 23,134
Average monthly benefit	\$ 499	\$ 586	\$ 755	\$ 1,193	\$ 1,626	\$ 2,097	\$ 2,905	\$ 1,928
Average final compensation	\$ 51,934	\$ 56,982	\$ 49,999	\$ 59,017	\$ 62,964	\$ 67,641	\$ 72,517	\$ 64,553
Number of retired members	278 *	333	1,422	1,375	2,161	1,897	3,944	11,410 **

\* Includes 125 members who did not have service reported.

\*\* Includes 4,080 members who did not have AFC reported.

Service	Police							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Total annual benefit	\$ 4,541,920	\$ 3,213,269	\$ 8,120,768	\$ 8,812,397	\$ 54,040,938	\$ 34,594,266	\$ 16,366,779	\$ 129,690,337
Average annual benefit	\$ 11,828	\$ 17,092	\$ 19,428	\$ 27,032	\$ 37,065	\$ 54,651	\$ 73,724	\$ 35,737
Average monthly benefit	\$ 986	\$ 1,424	\$ 1,619	\$ 2,253	\$ 3,089	\$ 4,554	\$ 6,144	\$ 2,978
Average final compensation	\$ 52,067	\$ 56,071	\$ 54,163	\$ 65,196	\$ 80,290	\$ 95,097	\$ 107,758	\$ 78,292
Number of retired members	384 *	188	418	326	1,458	633	222	3,629 **

\* Includes 245 members who did not have service reported.

\*\* Includes 1,771 members who did not have AFC reported.

Service	Fire							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Total annual benefit	\$ 1,968,863	\$ 486,914	\$ 2,060,756	\$ 3,277,299	\$ 20,468,379	\$ 19,415,124	\$ 13,814,413	\$ 61,491,748
Average annual benefit	\$ 13,768	\$ 16,230	\$ 21,466	\$ 26,218	\$ 33,174	\$ 49,655	\$ 71,577	\$ 38,553
Average monthly benefit	\$ 1,147	\$ 1,353	\$ 1,789	\$ 2,185	\$ 2,765	\$ 4,138	\$ 5,965	\$ 3,213
Average final compensation	\$ 55,226	\$ 57,997	\$ 60,126	\$ 70,005	\$ 78,510	\$ 91,235	\$ 100,861	\$ 84,646
Number of retired members	143 *	30	96	125	617	391	193	1,595 **

\* Includes 124 members who did not have service reported.

\*\* Includes 935 members who did not have AFC reported.

## Other Schedules of Interest Schedule of Retired and Vested Members by Type of Benefit

**Employees**

June 30, 2016																			
		Type of Retirement**								Option Selected #									
Amount of Monthly Benefit	Number of Retirees*	1	2	3	4	5	6	7	No. Option	1	2	3	4	5	6	7	8	9	Other&
\$1 - \$500	4,487	3,493	51	2	12	-	559	370	2,745	145	253	98	651	212	5	8	-	-	370
501 - 1,000	4,979	3,762	259	121	9	2	428	398	2,790	106	329	115	891	331	13	6	-	-	398
1,001 - 1,500	2,982	2,350	84	235	12	4	164	133	1,547	75	238	98	619	264	6	2	-	-	133
1,501 - 2,000	1,776	1,504	22	95	4	2	100	49	854	37	173	75	424	154	7	3	-	-	49
2,001 - 2,500	1,064	960	4	25	-	2	60	13	456	12	124	46	312	98	1	2	-	-	13
2,501 - 3,000	694	636	4	7	-	1	40	6	261	16	96	29	204	78	2	2	-	-	6
3,001 - 3,500	438	412	-	4	-	-	20	2	179	6	67	19	121	43	1	-	-	-	2
3,501 - 4,000	299	283	1	1	-	-	13	1	101	6	48	21	87	34	1	-	-	-	1
Over 4,000	396	383	1	2	1	-	8	1	124	4	63	36	112	54	1	1	-	-	1
<b>Totals</b>	<b>17,115</b>	<b>13,783</b>	<b>426</b>	<b>492</b>	<b>38</b>	<b>11</b>	<b>1,392</b>	<b>973</b>	<b>9,057</b>	<b>407</b>	<b>1,391</b>	<b>537</b>	<b>3,421</b>	<b>1,268</b>	<b>37</b>	<b>24</b>	<b>-</b>	<b>-</b>	<b>973</b>

**Teachers**

June 30, 2016																			
		Type of Retirement**								Option Selected #									
Amount of Monthly Benefit	Number of Retirees*	1	2	3	4	5	6	7	No. Option	1	2	3	4	5	6	7	8	9	Other&
\$1 - \$500	809	541	1	-	-	-	76	191	432	30	39	2	97	14	3	1	-	-	191
501 - 1,000	1,908	1,419	40	-	3	-	121	325	1,010	63	99	27	306	71	5	2	-	-	325
1,001 - 1,500	1,751	1,461	73	3	4	-	100	110	881	49	132	50	406	116	5	2	-	-	110
1,501 - 2,000	1,818	1,643	29	6	5	-	81	54	833	53	151	48	492	178	2	7	-	-	54
2,001 - 2,500	1,892	1,781	17	9	-	1	66	18	812	42	156	70	570	216	2	6	-	-	18
2,501 - 3,000	1,526	1,459	8	3	-	-	48	8	639	39	132	57	447	197	3	4	-	-	8
3,001 - 3,500	1,207	1,162	3	2	-	-	37	3	499	23	113	50	386	127	2	4	-	-	3
3,501 - 4,000	678	661	-	-	1	-	14	2	289	19	73	25	181	88	-	1	-	-	2
Over 4,000	532	517	-	-	-	-	15	-	241	7	67	18	138	61	-	-	-	-	-
<b>Totals</b>	<b>12,121</b>	<b>10,644</b>	<b>171</b>	<b>23</b>	<b>13</b>	<b>1</b>	<b>558</b>	<b>711</b>	<b>5,636</b>	<b>325</b>	<b>962</b>	<b>347</b>	<b>3,023</b>	<b>1,068</b>	<b>22</b>	<b>27</b>	<b>-</b>	<b>-</b>	<b>711</b>

See Page 94 for footnotes.

## Other Schedules of Interest Schedule of Retired and Vested Members by Type of Benefit

**Police**

June 30, 2016																				
		Type of Retirement**								Option Selected #										
Amount of Monthly Benefit	Number of Retirants*	1	2	3	4	5	6	7	No. Option	1	2	3	4	5	6	7	8	9	Other&	
\$1 - \$500	196	159	-	-	-	2	35	-	131	1		8	13	22	21	-	-	-	-	-
501 - 1,000	334	173	9	1	-	-	138	13	244	5		14	8	19	27	2	2	-	-	13
1,001 - 1,500	392	189	24	7	2	1	135	34	261	11		15	15	18	38	-	-	-	-	34
1,501 - 2,000	341	204	20	32	2	1	64	18	195	12		7	30	15	64	-	-	-	-	18
2,001 - 2,500	388	285	8	59	1	1	23	11	190	18		12	50	14	91	-	2	-	-	11
2,501 - 3,000	403	281	-	89	-	-	27	6	166	22		10	69	16	114	-	-	-	-	6
3,001 - 3,500	370	313	-	41	2	3	9	2	128	16		5	94	9	116	-	-	-	-	2
3,501 - 4,000	301	266	1	24	1	-	7	2	93	8		2	68	9	119	-	-	-	-	2
Over 4,000	993	930	1	47	1	1	10	3	243	18		11	304	14	399	1	-	-	-	3
Totals	3,718	2,800	63	300	9	9	448	89	1,651	111		84	651	136	989	3	4	-	-	89

**Fire**

June 30, 2016																				
		Type of Retirement**								Option Selected #										
Amount of Monthly Benefit	Number of Retirants*	1	2	3	4	5	6	7	No. Option	1	2	3	4	5	6	7	8	9	Other&	
\$1 - \$500	45	23	-	-	-	2	20	-	40	-		2	-	1	2	-	-	-	-	-
501 - 1,000	109	38	1	-	-	-	70	-	105	-		1	-	1	2	-	-	-	-	-
1,001 - 1,500	164	69	8	5	1	5	72	4	125	6		7	7	8	7	-	-	-	-	4
1,501 - 2,000	146	67	9	11	-	1	54	4	103	8		5	9	7	10	-	-	-	-	4
2,001 - 2,500	178	110	5	21	1	3	36	2	98	13		8	21	7	29	-	-	-	-	2
2,501 - 3,000	165	128	1	25	-	-	9	2	60	8		4	29	9	53	-	-	-	-	2
3,001 - 3,500	158	133	1	17	-	2	5	-	44	7		3	41	2	61	-	-	-	-	-
3,501 - 4,000	139	129	-	8	-	1	1	-	41	5		2	30	2	59	-	-	-	-	-
Over 4,000	503	479	-	13	1	-	10	-	125	11		2	133	5	225	1	1	-	-	-
Totals	1,607	1,176	25	100	3	14	277	12	741	58		34	270	42	448	1	1	-	-	12

See Page 94 for footnotes.

*\*\* Type of Retirement*

- 1-Service & early retirement
- 2-Ordinary disability retirement
- 3-Accidental disability retirement
- 4-Ordinary death in active service
- 5-Accidental death in active service
- 6-Beneficiaries of deceased members who retired on a service or disability allowance
- 7-Vested member with future benefit

*# Option Selected*

- No option - Straight life
- Option 1 - Cash refund
- Option 2 - 100% Joint & Survivorship
- Option 3 - 50% Joint & Survivorship
- Option 4 - 100% Pop-Up
- Option 5 - 50% Pop-Up
- Option 6 - Other % Joint & Survivorship
- Option 7 - Other % Pop-Up
- Option 8 - Fixed amount to Beneficiaries
- Option 9 - Widow's benefit (accidental disability) 50%

*\* Including Vested members with a future benefit.  
& Elections for Vested members are made at the time of commencement.*



**Other Schedules of Interest**  
**Schedule of Average Benefit Payment Amounts as of June 30, 2016**

**Medical Benefits**

Service	State Employees							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Average annual benefit	\$ 4,723	\$ 4,997	\$ 4,441	\$ 4,520	\$ 4,028	\$ 4,370	\$ 4,424	\$ 4,345
Average monthly benefit	\$ 394	\$ 416	\$ 370	\$ 377	\$ 336	\$ 364	\$ 369	\$ 362
Annual Benefits	\$382,544	\$334,814	\$324,159	\$185,304	\$1,945,584	\$1,441,974	\$3,189,632	\$7,804,011
Number of retired members	81	67	73	41	483	330	721	1,796

\* Includes 6 members who did not have service reported.

Service	Political Subdivision Employees							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Average annual benefit	\$ 3,048	\$ 2,638	\$ 2,786	\$ 3,120	\$ 4,226	\$ 4,270	\$ 5,017	\$ 4,392
Average monthly benefit	\$ 254	\$ 220	\$ 232	\$ 260	\$ 352	\$ 356	\$ 418	\$ 366
Annual Benefits	\$48,768	\$26,377	\$33,427	\$18,717	\$2,493,561	\$1,225,483	\$1,590,475	\$5,436,808
Number of retired members	16	10	12	6	590	287	317	1,238

\* Includes 6 members who did not have service reported.

Service	Teachers							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Average annual benefit	\$ 3,051	\$2,842	\$ 3,969	\$0	\$ 4,450	\$ 4,554	\$ 5,236	\$ 4,896
Average monthly benefit	\$ 254	\$ 237	\$ 331	\$ 0	\$ 371	\$ 379	\$ 436	\$ 408
Annual Benefits	\$54,925	\$11,368	\$15,875	\$0	\$4,391,882	\$4,312,344	\$12,467,121	\$21,253,515
Number of retired members	18	4	4	0	987	947	2,381	4,341

\* Includes 13 members who did not have service reported.

Service	Police and Fire							Total
	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	
Average annual benefit	\$ 4,690	\$ 4,833	\$ 5,248	\$ 5,067	\$ 5,953	\$ 6,497	\$ 6,355	\$ 5,969
Average monthly benefit	\$ 391	\$ 403	\$ 437	\$ 422	\$ 496	\$ 541	\$ 530	\$ 497
Annual Benefits	\$290,760	\$376,974	\$928,843	\$927,219	\$7,649,272	\$4,372,155	\$2,078,088	\$16,623,311
Number of retired members	62	78	177	183	1,285	673	327	2,785

\* Includes 19 members who did not have service reported.

Number counts include 56 retirees who are eligible for a deferred subsidy.

**Other Schedules of Interest  
Schedule of Retired Members by Type of Benefits  
Medical Benefits**

**State Employees**

June 30, 2016					
Monthly Benefit	No. of Retirees	1 Person		2 Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,638	65	1,534	0	39
501-1,000	156	7	84	31	34
1,001-1,500	2	0	2	0	0
1,501-2,000	0	0	0	0	0
Over 2,000	0	0	0	0	0
Total	1,796	72	1,620	31	73

**Political Subdivision Employees**

June 30, 2016					
Monthly Benefit	No. of Retirees	1 Person		2 Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,139	54	1,080	0	5
501-1,000	98	9	48	13	28
1,001-1,500	1	0	0	0	1
1,501-2,000	0	0	0	0	0
Over 2,000	0	0	0	0	0
Total	1,238	63	1,128	13	34

**Other Schedules of Interest**  
**Schedule of Retired Members by Type of Benefits**  
**Medical Benefits**

**Teachers**

June 30, 2016					
Monthly Benefit	No. of Retirees	1-Person		2-Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	3,710	138	3,530	0	42
501-1,000	593	33	196	62	302
1,001-1,500	26	3	13	2	8
1,501-2,000	12	1	1	10	0
Over 2,000	0	0	0	0	0
Total	4,341	175	3,740	74	352

**Police and Fire**

June 30, 2016					
Monthly Benefit	No. of Retirees	1-Person		2-Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,714	440	1,246	14	14
501-1,000	1,046	62	252	713	19
1,001-1,500	18	3	1	9	5
1,501-2,000	7	0	0	7	0
Over 2,000	0	0	0	0	0
Total	2,785	505	1,499	743	38

## Other Schedules of Interest Historical Membership Data - Retiree

<b>EMPLOYEES</b> (aggregate compensation and annual allowance dollars in thousands)									
<b>RETIRED MEMBERSHIP DATA</b>									
Fiscal Year	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances	
	No.**	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances			
2016 +	1,134	\$ 19,332	475	\$ 4,636	16,142	\$ 223,130	7.05%	\$ 13,823	
2015 +	1,504	21,357	1335	10,968	15,483	208,434	5.25%	13,462	
2014	1,094	15,784	492	5,431	15,314	198,045	5.52%	12,932	
2013	1,110	16,335	539	6,699	14,712	187,692	5.41%	12,758	
2012	1,111	14,711	457	4,890	14,141	178,056	5.84%	12,591	
2011	1,113	16,521	428	4,578	13,487	168,235	7.64%	12,474	
2010	1,070	18,300	460	4,624	12,802	156,292	9.59%	12,208	
2009	934	14,703	322	3,864	12,192	142,616	8.23%	11,697	
2008	1,083	17,897	362	4,199	11,580	131,777	11.60%	11,380	
2007	1,465	22,691	579	5,471	10,859	118,079	17.07%	10,874	
2005	1,620	19,183	739	5,972	9,973	100,859	18.56%	10,113	
2003	1,258	13,588	572	4,029	9,092	85,067	18.11%	9,356	
2001	1,095	10,078	617	3,965	8,406	72,025	17.11%	8,568	
1999	1,183	10,077	571	3,195	7,928	61,501	20.00%	7,757	

<b>TEACHERS</b> (aggregate compensation and annual allowance dollars in thousands)									
<b>RETIRED MEMBERSHIP DATA</b>									
Fiscal Year	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances	
	No.**	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances			
2016+	760	\$ 19,954	209	\$ 5,325	11,410	\$ 263,964	5.87%	\$ 23,134	
2015+	840	21,563	946	6,891	10,859	249,335	6.25%	22,961	
2014	744	17,222	186	4,802	10,965	234,663	5.59%	21,401	
2013	698	15,844	247	5,860	10,407	222,243	4.70%	21,355	
2012	712	16,420	183	5,150	9,956	212,259	5.61%	21,320	
2011	504	10,402	164	3,644	9,427	200,989	3.48%	21,321	
2010	849	22,231	269	5,199	9,087	194,231	9.61%	21,375	
2009	1,001	26,668	148	3,214	8,507	177,199	15.26%	20,830	
2008	891	23,743	165	4,238	7,654	153,745	14.53%	20,087	
2007	1,254	29,350	230	4,004	6,928	134,240	23.28%	19,376	
2005	1,121	21,842	344	4,591	5,904	108,894	24.34%	18,444	
2003	848	15,910	239	2,735	5,127	87,580	26.86%	17,082	
2001	501	8,375	272	2,691	4,518	69,036	12.62%	15,280	
1999	685	11,458	292	2,504	4,289	61,301	25.29%	14,293	

\* Includes additional COLA allowances. The benefit amounts shown are the monthly benefits as of the valuation date annualized and are not the actual benefits paid during the fiscal year.

\*\* Includes beneficiaries in receipt but excludes deferred vested terminations.

+ June 30, 2015 data included a reclassification of members with split benefits resulting in an artificially high number of new additions to the rolls.

## Other Schedules of Interest Historical Membership Data - Retiree

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**POLICE OFFICERS** (aggregate compensation and annual allowance dollars in thousands)

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**RETIRED MEMBERSHIP DATA**

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Fiscal Year	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	No.**	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances		
2016+	239	\$ 10,027	67	\$ 1,339	3,629	\$ 129,690	7.18%	\$ 35,737
2015+	282	7,303	107	1,675	3,457	121,002	4.88%	35,002
2014	178	6,420	59	1,304	3,282	115,374	4.64%	35,154
2013	247	8,189	65	1,464	3,163	110,258	6.50%	34,859
2012	171	6,977	70	1,008	2,981	103,533	6.12%	34,731
2011	237	10,370	59	1,133	2,880	97,564	10.46%	33,876
2010	189	7,711	52	1,413	2,702	88,327	7.68%	32,689
2009	157	7,235	28	627	2,565	82,029	8.76%	31,980
2008	179	8,504	36	1,376	2,436	75,421	10.44%	30,961
2007	361	14,045	80	1,540	2,293	68,293	22.42%	29,783
2005	308	8,934	83	1,492	2,012	55,788	17.68%	27,728
2003	262	7,903	61	971	1,787	47,406	23.81%	26,528
2001	280	6,085	63	960	1,586	38,290	25.58%	24,142
1999	238	5,790	39	604	1,369	30,490	30.00%	22,272

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**FIREFIGHTERS** (aggregate compensation and annual allowance dollars in thousands)

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**RETIRED MEMBERSHIP DATA**

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Fiscal Year	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	No.**	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances		
2016+	75	\$ 4,177	31	\$ 936	1,595	\$ 61,492	5.56%	\$ 38,553
2015+	105	4,546	47	882	1,551	58,251	6.71%	37,557
2014	89	2,774	43	1,139	1,493	54,587	3.09%	36,562
2013	98	3,497	27	715	1,447	52,952	5.55%	36,595
2012	79	3,105	39	495	1,376	50,170	5.49%	36,461
2011	111	5,051	29	696	1,336	47,560	10.08%	35,599
2010	53	2,490	36	766	1,254	43,205	4.16%	34,454
2009	60	2,628	23	644	1,237	41,481	5.02%	33,533
2008	63	3,456	31	1,110	1,200	39,497	6.31%	32,914
2007	131	7,404	24	1,066	1,168	37,151	20.57%	31,807
2005	128	4,393	66	1,290	1,061	30,813	15.83%	29,041
2003	142	4,747	49	1,067	999	26,602	30.26%	26,629
2001	164	3,861	39	541	906	20,422	29.36%	22,541
1999	108	2,684	41	514	781	15,787	25.03%	20,214

\* Includes additional COLA allowances. The benefit amounts shown are the monthly benefits as of the valuation date annualized and are not the actual benefits paid during the fiscal year.

\*\* Includes beneficiaries in receipt but excludes deferred vested terminations.

+ June 30, 2015 data included a reclassification of members with split benefits resulting in an artificially high number of new additions to the rolls.