

New Hampshire Retirement System

CAFR Schedules, GASB Statement Nos. 67 and 74 Plan
Reporting and Accounting Schedules
June 30, 2017





October 31, 2017

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. GRS is not responsible for unauthorized use of this report. 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, 2017.
- To provide information in connection with Governmental Accounting Standards Board (GASB) Statement No. 74 "Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans" as of June 30, 2017.
- To provide supporting schedules for the Comprehensive Annual Financial Report (CAFR) 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, 2017. 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.

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
- Solvency Test
- Schedule of Employer Contributions – Pension and OPEB
- Schedule of Changes in the Employers’ Net Pension Liability, Net OPEB Liability and Related Ratios
- Sensitivity of Net Pension Liability and Net OPEB Liability to the Single Discount Rate Assumption

The schedules include information regarding pension 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-b, 53-c and 53-d 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 valuations 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, 2017 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, 2017. The actuarial accrued liability as of June 30, 2017 differs from the total pension (OPEB) liability as of June 30, 2017 under GASB Nos. 67 and 74 because the total pension (OPEB) liability is based on a roll-forward of the June 30, 2016 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 Nos. 67 and 74 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. 74 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, 2017 accounting report of the NHRS is accurate and fairly presents the actuarial position of the New Hampshire Retirement System as of June 30, 2017 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, and 100-A:53-d.

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.



Board of Trustees
October 31, 2017
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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, PhD



Heidi G. Barry, ASA, FCA, MAAA

DTK/HGB:sc



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SECTION A

INTRODUCTION

Executive Summary

Pension

Covered Group	Employees	Teachers	Police	Fire	Total
I. Number of Participants as of June 30, 2017					
a. Actives	24,478	17,617	4,151	1,640	47,886
b. Retirees, Disabilities, and Beneficiaries	17,573	12,696	3,786	1,639	35,694
c. Vested Terminations	1,207	941	115	18	2,281
d. Non-Vested Inactive Terminations	6,803	43	518	3,113	10,477
e. Total	50,061	31,297	8,570	6,410	96,338
f. Total Covered Annual Payroll	\$ 1,179,518,298	\$ 1,073,446,998	\$ 291,003,704	\$ 123,642,532	\$ 2,667,611,532
II. GASB No. 67 Information					
a. Total Pension Liability (TPL)					\$ 13,171,980,810
b. Plan Fiduciary Net Position (PFNP)					8,253,987,979
c. Net Pension Liability (NPL): a. – b.					4,917,992,831
d. PFNP as a Percentage of TPL: b. / a.					62.7%
III. Statutory Funding Information					
a. Actuarial Present Value of Projected Benefits	\$ 5,014,742,389	\$ 5,909,073,260	\$ 2,896,949,763	\$ 1,375,838,215	\$ 15,196,603,627
b. Actuarial Present Value of Future Normal Costs	674,671,498	745,409,744	372,827,417	195,245,594	1,988,154,253
c. Actuarial Accrued Liability (AAL): a. – b.	4,340,070,891	5,163,663,516	2,524,122,346	1,180,592,621	13,208,449,374
d. Actuarial Value of Assets	2,734,557,588	2,979,004,853	1,650,907,814	801,213,897	8,165,684,152
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	\$ 1,605,513,303	\$ 2,184,658,663	\$ 873,214,532	\$ 379,378,724	\$ 5,042,765,222
f. Funded Status: d. / c.	63.0%	57.7%	65.4%	67.9%	61.8%
IV. Additional Information on Payroll					
State	\$ 536,482,267	\$ -	\$ 76,213,301	\$ 3,879,292	\$ 616,574,860
Political Subdivisions	643,036,031	1,073,446,998	214,790,403	119,763,240	2,051,036,672
Total	\$ 1,179,518,298	\$ 1,073,446,998	\$ 291,003,704	\$ 123,642,532	\$ 2,667,611,532

NOTE: GASB No. 67 TPL is based on a roll-forward of the June 30, 2016 valuation. Statutory Funding information is based on data/information provided as of June 30, 2017.

Executive Summary Medical Subsidy

Covered Group	State Employees	Political Subdivision Employees	Teachers	Police and Fire	Grand Total
I. Number of Participants Covered by Post Retirement Medical Subsidy as of June 30, 2017					
a. Actives	-	-	-	2,636	2,636
b. Retirees, Disabilities, and Beneficiaries	1,709	1,210	4,278	2,808	10,005
c. Vested Terminations	-	-	-	-	-
d. Total	1,709	1,210	4,278	5,444	12,641
e. Total NHRS Covered Annual Payroll	\$ 536,482,267	\$ 643,036,031	\$ 1,073,446,998	\$ 414,646,236	\$ 2,667,611,532
II. GASB No. 74 Information					
a. Total OPEB Liability (TOL)					\$ 496,507,156
b. Plan Fiduciary Net Position (PFNP)					39,273,201
c. Net OPEB Liability (NOL): a. – b.					457,233,955
d. PFNP as a Percentage of TOL: b. / a.					7.9%
III. Statutory Funding Information					
a. Actuarial Present Value of Projected Benefits	\$ 67,701,241	\$ 53,651,633	\$ 241,519,017	\$ 345,292,684	\$ 708,164,575
b. Actuarial Present Value of Future Normal Costs	-	-	-	11,616,236	11,616,236
c. Actuarial Accrued Liability (AAL): a. – b.	67,701,241	53,651,633	241,519,017	333,676,448	696,548,339
d. Valuation Assets	3,162,662	18,288,882	6,513,728	10,887,772	38,853,044
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	64,538,579	35,362,751	235,005,289	322,788,676	657,695,295
f. Funded Status: d. / c.	4.7%	34.1%	2.7%	3.3%	5.6%

NOTE: GASB No. 74 TOL is based on a roll-forward of the June 30, 2016 valuation. Statutory Funding information is based on data/information provided as of June 30, 2017.

Discussion and Comments

Comment 1:

In total, plan experience between June 30, 2016 and June 30, 2017 was favorable 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 2.6% versus the assumed increase of 3.25% (3.0% for Teachers). Between the 2016 and 2017 valuation, the pension funded ratio increased by 1.8% from 60.0% to 61.8%.

The impact on GASB No. 67 was an increase in the ratio of plan fiduciary net position to total pension liability from 58.3% to 62.7%. 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, 2017 was 13.31% 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 36 and 37 for additional asset information for statutory funding purposes.

On the basis of statutory funding, the rate of return was 9.11% on the actuarial value of assets, resulting in a recognized asset gain of \$141 million (pension and medical subsidy combined). The return on the market value of assets exceeds the return on the actuarial value of assets because some of this year's high market return is deferred and prior years' low returns are recognized this year.

The Market Value of Assets of the System of \$8.29 billion is greater than the Actuarial Value of Assets of \$8.20 billion by \$89 million as of the valuation date (see page 36). This difference will be gradually recognized over the next four years in the absence of future gains/losses.

Overall, the System had a gain of \$115 million comprised of an asset gain of \$141 million and a liability loss of \$26 million. See page 40 for additional information on gains and losses.

Comment 2:

In June 2015, the Governmental Accounting Standards Board (GASB) issued new OPEB Accounting Standards No. 74 and No. 75 for OPEB systems and sponsoring governmental entities respectively. The effective date is the first fiscal year following June 15, 2016 for plan disclosures and the first fiscal year following June 15, 2017 for Employer disclosures.

The steps in this implementation process are as follows:

- This report includes GASB No. 74 information for the plan's fiscal year ending June 30, 2017. This includes the determination of the GASB discount rate for the OPEB 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, 2017, December 31, 2017 or June 30, 2018 may use a measurement date as of June 30, 2017.

Discussion and Comments (Concluded)

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 20 years for Fiscal Year 2020 and 19 years for Fiscal Year 2021.

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.

The June 30, 2017 valuation is a statutory contribution rate setting valuation. Additional information about statutory contribution rates will be included in a future funding valuation report as of June 30, 2017.

Results of the Valuation

This report provides information in connection with Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 74, 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 (2017, 2019, etc.). The June 30, 2017 actuarial valuation will establish the fiscal year 2020 and 2021 employer contribution rates.

SECTION B

FINANCIAL SECTION

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, 2016 rolled forward to the measurement date of June 30, 2017. The roll forward procedure increases the June 30, 2016 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%
2017	\$6,479,208,704	\$4,917,992,831	\$3,638,638,217	7.25%

Statement of Fiduciary Net Position as of June 30, 2017 Pension

	2017*
Assets	
Cash and Deposits	\$ 9,344,885
Receivables	
Accounts Receivable - Sale of Investments	\$ 15,745,837
Interest and Dividend Receivables	17,416,112
Contributions	63,644,343
Accounts Receivable - Other	3,149,953
Total Receivables	\$ 99,956,245
Investments	
Fixed Income	\$ 1,807,417,021
Domestic Equities	2,923,484,317
International Equities	1,203,361,841
Real Estate	812,107,885
Other	1,426,926,198
Total Investments	\$ 8,173,297,262
Total Assets	\$ 8,282,598,392
 Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 19,016,296
Accrued Expenses	9,594,117
Total Liabilities	\$ 28,610,413
Net Position Restricted for Pensions	\$ 8,253,987,979

* Reported amounts provided by the System as of June 30, 2017 do not include the 401(h) medical subsidy account.

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2017 Pension

	Total
Additions	
Contributions	
Employer	\$ 366,653,014
Member	213,060,827
Total Contributions	\$ 579,713,841
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 831,995,682
Interest and Dividends	172,109,067
Less Investment Expense	(25,510,331)
Net Investment Income	\$ 978,594,418
Total Additions	\$ 1,558,308,259
 Deductions	
Benefit Payments and Refunds	\$ 729,712,306
Pension Plan Administrative Expense	7,670,827
Other custodial, professional and non-investment expenses	1,254,518
Total Deductions	\$ 738,637,651
Net Increase in Net Position	\$ 819,670,608
 Net Position Restricted for Pensions	
Beginning of Year	\$ 7,434,317,371
End of Year	\$ 8,253,987,979

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, 2017</u>	<u>June 30, 2016</u>	<u>June 30, 2015</u>	<u>June 30, 2014</u>	<u>June 30, 2013</u>
Total Pension Liability					
Service Cost	\$ 262,626,490	\$ 266,379,101	\$ 243,964,955	\$ 245,827,165	\$ 255,178,452
Interest on the Total Pension Liability	906,200,904	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	(19,046,986)	18,403,928	(106,715,500)	-	(101,140,741)
Assumption Changes	-	815,022,527	-	-	-
Benefit Payments	(706,303,846)	(670,359,868)	(631,310,997)	(599,475,606)	(573,470,316)
Refunds	(23,408,460)	(24,233,277)	(26,344,739)	(26,119,759)	(23,190,984)
Net Change in Total Pension Liability	\$ 420,068,102	\$ 1,280,459,166	\$ 327,239,769	\$ 435,445,336	\$ 347,167,986
Total Pension Liability - Beginning	\$ 12,751,912,708	\$ 11,471,453,542	\$ 11,144,213,773	\$ 10,708,768,437	\$ 10,361,600,451
Total Pension Liability - Ending (a)	\$ 13,171,980,810	\$ 12,751,912,708	\$ 11,471,453,542	\$ 11,144,213,773	\$ 10,708,768,437
Plan Fiduciary Net Position					
Allocable Contributions - Employer**	\$ 366,343,344	\$ 358,079,066	\$ 335,488,145	\$ 324,423,138	\$ 248,653,619
Contributions - Member	213,060,827	207,949,398	204,063,168	199,032,996	196,488,619
Pension Plan Net Investment Income	978,594,418	61,877,808	249,804,954	1,092,585,321	813,797,720
Benefit Payments	(706,303,846)	(670,359,868)	(631,310,997)	(599,475,606)	(573,470,316)
Refunds	(23,408,460)	(24,233,277)	(26,344,739)	(26,119,759)	(23,190,984)
Pension Plan Administrative Expense	(7,670,827)	(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	(944,848)	(1,860,891)	(4,820,785)	2,574,236	(622,961)
Net Change in Plan Fiduciary Net Position	\$ 819,670,608	\$ (75,609,081)	\$ 119,298,431	\$ 985,644,056	\$ 654,657,171
Plan Fiduciary Net Position - Beginning	\$ 7,434,317,371	\$ 7,509,926,452	\$ 7,390,628,021	\$ 6,404,983,965	\$ 5,750,326,794
Plan Fiduciary Net Position - Ending (b)	\$ 8,253,987,979	\$ 7,434,317,371	\$ 7,509,926,452	\$ 7,390,628,021	\$ 6,404,983,965
Net Pension Liability - Ending (a) - (b)	\$ 4,917,992,831	\$ 5,317,595,337	\$ 3,961,527,090	\$ 3,753,585,752	\$ 4,303,784,472
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	62.66 %	58.30 %	65.47 %	66.32 %	59.81 %
Covered-Employee Payroll*	\$2,667,611,532	\$2,601,403,606	\$2,575,031,210	\$ 2,507,898,809	\$ 2,501,741,708
Net Pension Liability as a Percentage of Covered-Employee Payroll	184.36 %	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

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
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%
2017	13,171,980,810	8,253,987,979	4,917,992,831	62.66%	2,667,611,532	184.36%

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

Schedule of Employer Pension Contributions Ultimately 10 Fiscal Years Will Be Displayed

FY Ending June 30,	Actuarially Determined Contribution**	Actual Contribution#	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
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%
2017	366,653,014	366,653,014	-	2,667,611,532	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 Pension Contributions

Valuation Date: Actuarially determined contribution rates for the 2016-2017 biennium were determined based on the June 30, 2013 actuarial valuation. Actuarially 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, 2016 to June 30, 2017 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	22 years beginning July 1, 2017 (30 years beginning July 1, 2009)
Asset Valuation Method	5-year smoothed market for funding purposes; 20% corridor
Price Inflation	2.5% per year
Wage Inflation	3.25% per year
Salary Increases	5.6% average, including inflation
Municipal Bond Rate	3.56% per year
Investment Rate of Return	7.25% per year, net of investment expenses, including inflation
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 Healthy Annuitant and Employee generational mortality tables for males and females with credibility adjustments, adjusted for fully generational 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 51. Actuarial assumptions for contributions made in the year ending June 30, 2017 can be found in the June 30, 2013 actuarial valuation report.

Summary of Pension Population Statistics as of June 30, 2016

For purposes of GASB No. 67 disclosures, the System has adopted a roll-forward methodology for accounting purposes. This means that the June 30, 2017 Total Pension Liability is based on a roll-forward of the June 30, 2016 valuation. A brief summary of the June 30, 2016 census data is shown below.

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	32,776
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,785
Active Plan Members	48,069
Non-Vested Inactive Members	<u>9,528</u>
Total Plan Members	92,158

Additional information regarding the covered population as of June 30, 2016 may be found in the actuarial valuation report issued October 28, 2016.

Calculation of the Single Discount Rate for Pension

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 3.56% (based on the June 2017 20-Bond GO 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, 2017 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, 2017.

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 Pension Contributions Beginning July 1, 2017 (Years 1-50 only)

Year	Payroll for Current Employees	Contributions from Current Employees	Employer Service Cost and Expense Contributions	UAL Contributions	Total Contributions
0	\$ 2,667,611,532				
1	2,633,613,202	\$ 186,929,506	\$ 69,650,858	\$ 289,658,015	\$ 546,238,379
2	2,496,240,523	177,417,687	64,364,146	346,613,829	588,395,662
3	2,369,194,306	168,563,789	59,325,572	357,878,778	585,768,140
4	2,248,629,252	160,098,451	54,430,452	360,288,376	574,817,279
5	2,131,631,983	151,862,407	49,726,211	371,997,748	573,586,366
6	2,017,772,576	143,865,068	45,309,884	384,087,675	573,262,627
7	1,907,730,388	136,113,180	41,174,729	396,570,525	573,858,434
8	1,800,614,765	128,545,748	37,281,933	409,459,067	575,286,748
9	1,697,011,145	121,237,154	33,660,493	422,766,486	577,664,133
10	1,597,382,524	114,197,604	30,311,869	436,506,397	581,015,870
11	1,500,793,810	107,355,703	27,183,049	450,692,855	585,231,607
12	1,407,906,549	100,777,148	24,311,902	465,340,373	590,429,422
13	1,316,640,284	94,295,509	21,601,124	480,463,935	596,360,568
14	1,228,004,130	87,964,279	19,071,085	496,079,013	603,114,377
15	1,143,361,254	81,905,437	16,785,896	512,201,581	610,892,914
16	1,062,276,731	76,092,693	14,719,105	528,848,132	619,659,930
17	982,503,463	70,373,955	12,801,886	546,035,696	629,211,537
18	904,989,638	64,796,198	11,027,890	563,781,856	639,605,944
19	830,316,162	59,429,934	9,430,316	582,104,767	650,965,016
20	758,437,756	54,266,065	7,998,422	601,023,172	663,287,658
21	689,753,213	49,278,354	6,708,104	620,556,425	676,542,883
22	623,630,932	44,424,540	5,533,061	640,724,509	690,682,110
23	558,863,378	39,610,265	4,439,215	661,548,055	705,597,536
24	496,205,755	34,887,961	3,440,802	-	38,328,763
25	437,373,988	30,441,307	2,571,784	-	33,013,091
26	383,510,218	26,419,931	1,861,972	-	28,281,903
27	334,212,726	22,770,170	1,313,881	-	24,084,051
28	289,430,699	19,322,670	1,068,297	-	20,390,967
29	248,963,942	16,317,158	842,112	-	17,159,269
30	213,743,700	13,777,659	657,666	-	14,435,325
31	182,417,167	11,580,399	509,100	-	12,089,498
32	153,935,197	9,633,180	392,704	-	10,025,883
33	127,975,023	7,898,182	305,190	-	8,203,371
34	104,188,363	6,341,461	239,576	-	6,581,036
35	82,807,865	4,972,428	186,125	-	5,158,554
36	63,612,119	3,769,935	142,403	-	3,912,338
37	47,159,458	2,755,086	110,887	-	2,865,973
38	33,588,849	1,926,344	90,487	-	2,016,831
39	22,935,639	1,288,514	72,272	-	1,360,786
40	15,074,682	827,663	54,840	-	882,503
41	9,556,984	511,848	41,086	-	552,934
42	5,918,046	306,063	32,147	-	338,210
43	3,663,274	180,729	26,061	-	206,790
44	2,191,272	105,500	16,653	-	122,153
45	1,214,658	57,101	9,654	-	66,755
46	608,644	28,064	4,874	-	32,938
47	295,172	13,495	2,071	-	15,567
48	154,794	7,162	789	-	7,952
49	69,671	3,322	169	-	3,491
50	22,274	1,090	17	-	1,107

Single Discount Rate Development

Projection of Pension Plan Fiduciary Net Position

Beginning July 1, 2017

(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	\$ 8,253,987,979	\$ 546,238,379	\$ 799,406,228	\$ 9,217,646	\$ 589,069,070	\$ 8,580,671,553
2	8,580,671,553	588,395,662	837,075,633	8,736,842	612,930,592	8,936,185,333
3	8,936,185,333	585,768,140	876,120,390	8,292,180	637,236,989	9,274,777,892
4	9,274,777,892	574,817,279	915,549,123	7,870,202	660,005,671	9,586,181,517
5	9,586,181,517	573,586,366	955,152,215	7,460,712	681,142,684	9,878,297,639
6	9,878,297,639	573,262,627	993,259,885	7,062,204	700,966,532	10,152,204,709
7	10,152,204,709	573,858,434	1,028,957,339	6,677,056	719,588,340	10,410,017,088
8	10,410,017,088	575,286,748	1,062,897,738	6,302,152	737,135,148	10,653,239,094
9	10,653,239,094	577,664,133	1,095,984,254	5,939,539	753,687,929	10,882,667,363
10	10,882,667,363	581,015,870	1,128,526,377	5,590,839	769,294,260	11,098,860,276
11	11,098,860,276	585,231,607	1,157,826,982	5,252,778	784,086,870	11,305,098,993
12	11,305,098,993	590,429,422	1,184,469,329	4,927,673	798,286,992	11,504,418,406
13	11,504,418,406	596,360,568	1,210,483,644	4,608,241	812,033,749	11,697,720,838
14	11,697,720,838	603,114,377	1,234,789,287	4,298,014	825,434,102	11,887,182,016
15	11,887,182,016	610,892,914	1,256,234,854	4,001,764	838,693,827	12,076,532,139
16	12,076,532,139	619,659,930	1,274,840,204	3,717,969	852,081,419	12,269,715,315
17	12,269,715,315	629,211,537	1,291,772,368	3,438,762	865,834,279	12,469,550,001
18	12,469,550,001	639,605,944	1,306,064,180	3,167,464	880,193,148	12,680,117,449
19	12,680,117,449	650,965,016	1,317,448,400	2,906,107	895,467,700	12,906,195,659
20	12,906,195,659	663,287,658	1,326,055,082	2,654,532	911,999,677	13,152,773,380
21	13,152,773,380	676,542,883	1,332,896,005	2,414,136	930,113,574	13,424,119,697
22	13,424,119,697	690,682,110	1,337,114,502	2,182,708	950,147,759	13,725,652,355
23	13,725,652,355	705,597,536	1,339,014,796	1,956,022	972,480,494	14,062,759,567
24	14,062,759,567	38,328,763	1,338,709,232	1,736,720	973,174,177	13,733,816,555
25	13,733,816,555	33,013,091	1,334,404,346	1,530,809	949,297,142	13,380,191,633
26	13,380,191,633	28,281,903	1,325,975,532	1,342,286	923,797,743	13,004,953,461
27	13,004,953,461	24,084,051	1,313,620,785	1,169,745	896,889,635	12,611,136,618
28	12,611,136,618	20,390,967	1,297,914,021	1,013,007	868,771,373	12,201,371,930
29	12,201,371,930	17,159,269	1,278,351,611	871,374	839,650,108	11,778,958,322
30	11,778,958,322	14,435,325	1,254,355,099	748,103	809,787,150	11,348,077,595
31	11,348,077,595	12,089,498	1,226,877,297	638,460	779,447,297	10,912,098,633
32	10,912,098,633	10,025,883	1,196,670,228	538,773	748,844,723	10,473,760,238
33	10,473,760,238	8,203,371	1,164,914,579	447,913	718,134,517	10,034,735,634
34	10,034,735,634	6,581,036	1,132,457,422	364,659	687,406,404	9,595,900,993
35	9,595,900,993	5,158,554	1,099,760,599	289,828	656,707,417	9,157,716,537
36	9,157,716,537	3,912,338	1,067,172,699	222,642	626,057,695	8,720,291,229
37	8,720,291,229	2,865,973	1,034,586,335	165,058	595,469,732	8,283,875,541
38	8,283,875,541	2,016,831	1,001,611,392	117,561	564,975,471	7,849,138,890
39	7,849,138,890	1,360,786	967,058,409	80,275	534,665,657	7,418,026,648
40	7,418,026,648	882,503	930,795,018	52,761	504,685,513	6,992,746,885
41	6,992,746,885	552,934	893,103,829	33,449	475,184,080	6,575,346,622
42	6,575,346,622	338,210	854,071,704	20,713	446,305,526	6,167,897,941
43	6,167,897,941	206,790	814,265,416	12,821	418,178,828	5,772,005,322
44	5,772,005,322	122,153	774,519,883	7,669	390,889,350	5,388,489,273
45	5,388,489,273	66,755	735,126,232	4,251	364,485,620	5,017,911,165
46	5,017,911,165	32,938	696,149,693	2,130	339,005,757	4,660,798,037
47	4,660,798,037	15,567	657,741,972	1,033	314,482,396	4,317,552,994
48	4,317,552,994	7,952	620,093,931	542	290,937,740	3,988,404,213
49	3,988,404,213	3,491	583,308,554	244	268,384,444	3,673,483,350
50	3,673,483,350	1,107	547,422,514	78	246,830,711	3,372,892,576

Single Discount Rate Development

Projection of Pension Plan Fiduciary Net Position

Beginning July 1, 2017

(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	\$ 3,372,892,576	\$ 179	\$ 512,462,213	\$ 13	\$ 226,282,987	\$ 3,086,713,517
52	3,086,713,517	20	478,461,157	1	206,745,973	2,814,998,352
53	2,814,998,352	-	445,456,632	-	188,222,104	2,557,763,824
54	2,557,763,824	-	413,482,868	-	170,711,371	2,314,992,327
55	2,314,992,327	-	382,575,285	-	154,211,235	2,086,628,276
56	2,086,628,276	-	352,769,975	-	138,716,380	1,872,574,681
57	1,872,574,681	-	324,101,477	-	124,218,544	1,672,691,749
58	1,672,691,749	-	296,601,513	-	110,706,464	1,486,796,700
59	1,486,796,700	-	270,299,598	-	98,165,835	1,314,662,937
60	1,314,662,937	-	245,225,095	-	86,579,185	1,156,017,028
61	1,156,017,028	-	221,407,077	-	75,925,653	1,010,535,604
62	1,010,535,604	-	198,873,245	-	66,180,810	877,843,168
63	877,843,168	-	177,648,236	-	57,316,553	757,511,485
64	757,511,485	-	157,752,368	-	49,301,112	649,060,229
65	649,060,229	-	139,200,161	-	42,099,147	551,959,215
66	551,959,215	-	121,999,917	-	35,671,923	465,631,222
67	465,631,222	-	106,151,719	-	29,977,590	389,457,092
68	389,457,092	-	91,646,774	-	24,971,570	322,781,888
69	322,781,888	-	78,466,077	-	20,607,058	264,922,868
70	264,922,868	-	66,580,084	-	16,835,608	215,178,392
71	215,178,392	-	55,949,330	-	13,607,756	172,836,817
72	172,836,817	-	46,525,796	-	10,873,618	137,184,639
73	137,184,639	-	38,254,226	-	8,583,433	107,513,846
74	107,513,846	-	31,072,443	-	6,688,085	83,129,488
75	83,129,488	-	24,910,682	-	5,139,675	63,358,480
76	63,358,480	-	19,692,359	-	3,892,132	47,558,253
77	47,558,253	-	15,334,853	-	2,901,811	35,125,210
78	35,125,210	-	11,751,250	-	2,128,048	25,502,009
79	25,502,009	-	8,852,350	-	1,533,612	18,183,271
80	18,183,271	-	6,548,400	-	1,085,061	12,719,932
81	12,719,932	-	4,751,621	-	752,962	8,721,273
82	8,721,273	-	3,378,242	-	511,974	5,855,005
83	5,855,005	-	2,350,811	-	340,762	3,844,955
84	3,844,955	-	1,599,331	-	221,798	2,467,422
85	2,467,422	-	1,062,331	-	141,052	1,546,143
86	1,546,143	-	688,043	-	87,590	945,691
87	945,691	-	434,237	-	53,097	564,551
88	564,551	-	267,069	-	31,418	328,899
89	328,899	-	160,082	-	18,144	186,961
90	186,961	-	93,612	-	10,221	103,570
91	103,570	-	53,414	-	5,606	55,762
92	55,762	-	29,685	-	2,986	29,063
93	29,063	-	15,963	-	1,539	14,639
94	14,639	-	8,279	-	766	7,126
95	7,126	-	4,146	-	369	3,348
96	3,348	-	1,977	-	172	1,544
97	1,544	-	932	-	79	691
98	691	-	462	-	34	263
99	263	-	272	-	9	0
100	0	-	-	-	0	0

Single Discount Rate Development

Present Values of Projected Pension Benefit Payments

Beginning July 1, 2017

(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 ^{(a)-.5}	(g)=(e)*vf ^{(a)-.5}	(h)=(c)/((1+sdr) ^{(a)-.5})
1	\$ 8,253,987,979	\$ 799,406,228	\$ 799,406,228	\$ -	\$ 771,913,928	\$ -	\$ 771,913,928
2	8,580,671,553	837,075,633	837,075,633	-	753,648,343	-	753,648,343
3	8,936,185,333	876,120,390	876,120,390	-	735,479,438	-	735,479,438
4	9,274,777,892	915,549,123	915,549,123	-	716,623,586	-	716,623,586
5	9,586,181,517	955,152,215	955,152,215	-	697,083,388	-	697,083,388
6	9,878,297,639	993,259,885	993,259,885	-	675,892,677	-	675,892,677
7	10,152,204,709	1,028,957,339	1,028,957,339	-	652,852,263	-	652,852,263
8	10,410,017,088	1,062,897,738	1,062,897,738	-	628,798,832	-	628,798,832
9	10,653,239,094	1,095,984,254	1,095,984,254	-	604,543,084	-	604,543,084
10	10,882,667,363	1,128,526,377	1,128,526,377	-	580,413,301	-	580,413,301
11	11,098,860,276	1,157,826,982	1,157,826,982	-	555,228,828	-	555,228,828
12	11,305,098,993	1,184,469,329	1,184,469,329	-	529,608,394	-	529,608,394
13	11,504,418,406	1,210,483,644	1,210,483,644	-	504,652,774	-	504,652,774
14	11,697,720,838	1,234,789,287	1,234,789,287	-	479,986,797	-	479,986,797
15	11,887,182,016	1,256,234,854	1,256,234,854	-	455,312,922	-	455,312,922
16	12,076,532,139	1,274,840,204	1,274,840,204	-	430,821,718	-	430,821,718
17	12,269,715,315	1,291,772,368	1,291,772,368	-	407,033,849	-	407,033,849
18	12,469,550,001	1,306,064,180	1,306,064,180	-	383,717,630	-	383,717,630
19	12,680,117,449	1,317,448,400	1,317,448,400	-	360,897,230	-	360,897,230
20	12,906,195,659	1,326,055,082	1,326,055,082	-	338,699,221	-	338,699,221
21	13,152,773,380	1,332,896,005	1,332,896,005	-	317,432,653	-	317,432,653
22	13,424,119,697	1,337,114,502	1,337,114,502	-	296,911,235	-	296,911,235
23	13,725,652,355	1,339,014,796	1,339,014,796	-	277,233,755	-	277,233,755
24	14,062,759,567	1,338,709,232	1,338,709,232	-	258,434,023	-	258,434,023
25	13,733,816,555	1,334,404,346	1,334,404,346	-	240,189,256	-	240,189,256
26	13,380,191,633	1,325,975,532	1,325,975,532	-	222,538,081	-	222,538,081
27	13,004,953,461	1,313,620,785	1,313,620,785	-	205,561,387	-	205,561,387
28	12,611,136,618	1,297,914,021	1,297,914,021	-	189,373,912	-	189,373,912
29	12,201,371,930	1,278,351,611	1,278,351,611	-	173,911,079	-	173,911,079
30	11,778,958,322	1,254,355,099	1,254,355,099	-	159,110,970	-	159,110,970
31	11,348,077,595	1,226,877,297	1,226,877,297	-	145,105,360	-	145,105,360
32	10,912,098,633	1,196,670,228	1,196,670,228	-	131,965,227	-	131,965,227
33	10,473,760,238	1,164,914,579	1,164,914,579	-	119,779,309	-	119,779,309
34	10,034,735,634	1,132,457,422	1,132,457,422	-	108,570,616	-	108,570,616
35	9,595,900,993	1,099,760,599	1,099,760,599	-	98,308,547	-	98,308,547
36	9,157,716,537	1,067,172,699	1,067,172,699	-	88,946,840	-	88,946,840
37	8,720,291,229	1,034,586,335	1,034,586,335	-	80,401,705	-	80,401,705
38	8,283,875,541	1,001,611,392	1,001,611,392	-	72,577,244	-	72,577,244
39	7,849,138,890	967,058,409	967,058,409	-	65,336,614	-	65,336,614
40	7,418,026,648	930,795,018	930,795,018	-	58,635,505	-	58,635,505
41	6,992,746,885	893,103,829	893,103,829	-	52,457,944	-	52,457,944
42	6,575,346,622	854,071,704	854,071,704	-	46,774,198	-	46,774,198
43	6,167,897,941	814,265,416	814,265,416	-	41,579,638	-	41,579,638
44	5,772,005,322	774,519,883	774,519,883	-	36,876,525	-	36,876,525
45	5,388,489,273	735,126,232	735,126,232	-	32,634,881	-	32,634,881
46	5,017,911,165	696,149,693	696,149,693	-	28,815,453	-	28,815,453
47	4,660,798,037	657,741,972	657,741,972	-	25,385,228	-	25,385,228
48	4,317,552,994	620,093,931	620,093,931	-	22,314,424	-	22,314,424
49	3,988,404,213	583,308,554	583,308,554	-	19,571,732	-	19,571,732
50	3,673,483,350	547,422,514	547,422,514	-	17,126,013	-	17,126,013

Single Discount Rate Development

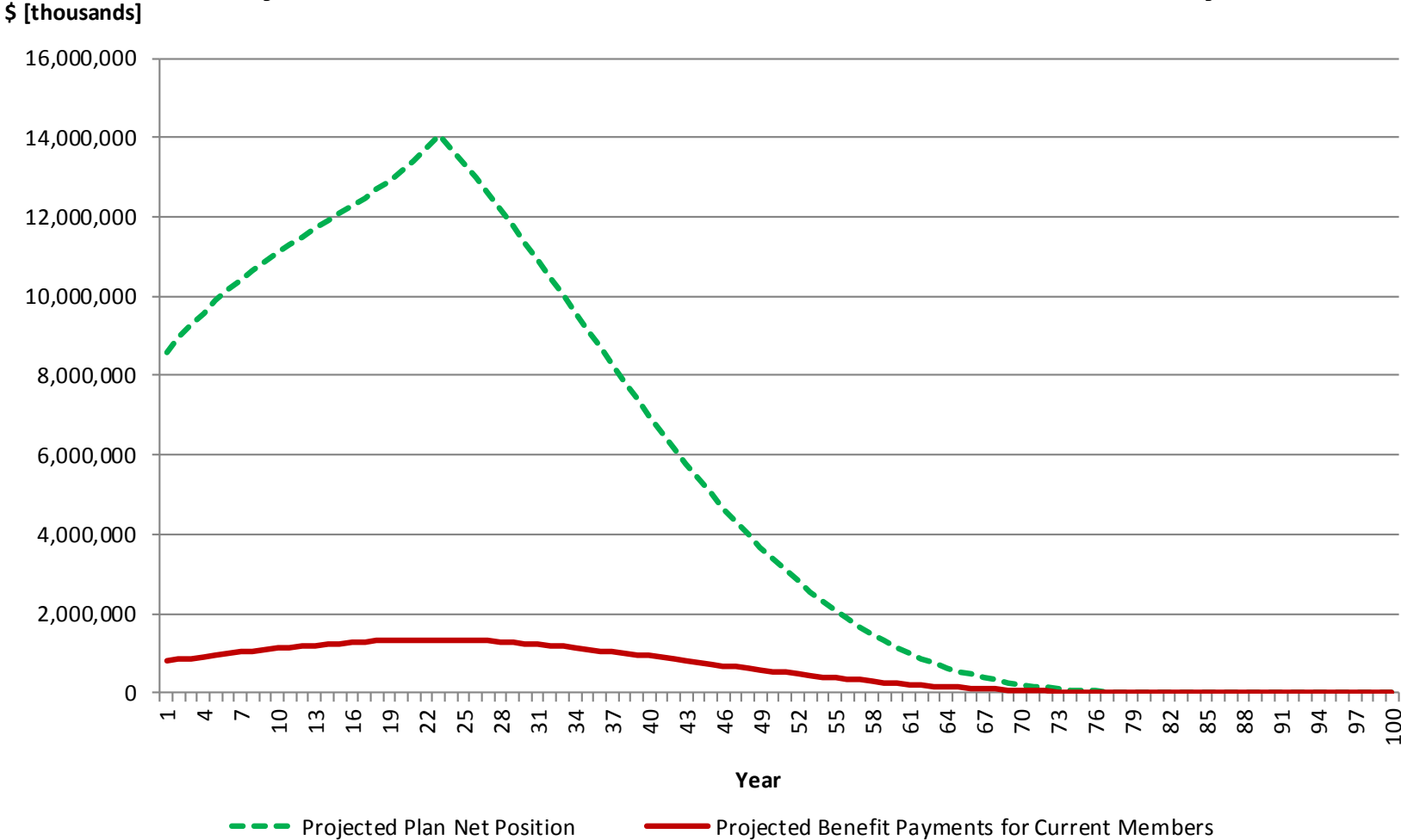
Present Values of Projected Pension Benefit Payments

Beginning July 1, 2017 (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^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=((c)/(1+s dr)^(a)-.5)
51	\$ 3,372,892,576	\$512,462,213	\$ 512,462,213	\$ -	\$ 14,948,519	\$ -	\$ 14,948,519
52	3,086,713,517	478,461,157	478,461,157	-	13,013,248	-	13,013,248
53	2,814,998,352	445,456,632	445,456,632	-	11,296,584	-	11,296,584
54	2,557,763,824	413,482,868	413,482,868	-	9,776,917	-	9,776,917
55	2,314,992,327	382,575,285	382,575,285	-	8,434,591	-	8,434,591
56	2,086,628,276	352,769,975	352,769,975	-	7,251,727	-	7,251,727
57	1,872,574,681	324,101,477	324,101,477	-	6,212,030	-	6,212,030
58	1,672,691,749	296,601,513	296,601,513	-	5,300,643	-	5,300,643
59	1,486,796,700	270,299,598	270,299,598	-	4,504,051	-	4,504,051
60	1,314,662,937	245,225,095	245,225,095	-	3,810,005	-	3,810,005
61	1,156,017,028	221,407,077	221,407,077	-	3,207,412	-	3,207,412
62	1,010,535,604	198,873,245	198,873,245	-	2,686,225	-	2,686,225
63	877,843,168	177,648,236	177,648,236	-	2,237,328	-	2,237,328
64	757,511,485	157,752,368	157,752,368	-	1,852,453	-	1,852,453
65	649,060,229	139,200,161	139,200,161	-	1,524,101	-	1,524,101
66	551,959,215	121,999,917	121,999,917	-	1,245,479	-	1,245,479
67	465,631,222	106,151,719	106,151,719	-	1,010,431	-	1,010,431
68	389,457,092	91,646,774	91,646,774	-	813,391	-	813,391
69	322,781,888	78,466,077	78,466,077	-	649,332	-	649,332
70	264,922,868	66,580,084	66,580,084	-	513,726	-	513,726
71	215,178,392	55,949,330	55,949,330	-	402,518	-	402,518
72	172,836,817	46,525,796	46,525,796	-	312,095	-	312,095
73	137,184,639	38,254,226	38,254,226	-	239,263	-	239,263
74	107,513,846	31,072,443	31,072,443	-	181,207	-	181,207
75	83,129,488	24,910,682	24,910,682	-	135,452	-	135,452
76	63,358,480	19,692,359	19,692,359	-	99,839	-	99,839
77	47,558,253	15,334,853	15,334,853	-	72,491	-	72,491
78	35,125,210	11,751,250	11,751,250	-	51,796	-	51,796
79	25,502,009	8,852,350	8,852,350	-	36,381	-	36,381
80	18,183,271	6,548,400	6,548,400	-	25,093	-	25,093
81	12,719,932	4,751,621	4,751,621	-	16,977	-	16,977
82	8,721,273	3,378,242	3,378,242	-	11,254	-	11,254
83	5,855,005	2,350,811	2,350,811	-	7,302	-	7,302
84	3,844,955	1,599,331	1,599,331	-	4,632	-	4,632
85	2,467,422	1,062,331	1,062,331	-	2,869	-	2,869
86	1,546,143	688,043	688,043	-	1,732	-	1,732
87	945,691	434,237	434,237	-	1,019	-	1,019
88	564,551	267,069	267,069	-	585	-	585
89	328,899	160,082	160,082	-	327	-	327
90	186,961	93,612	93,612	-	178	-	178
91	103,570	53,414	53,414	-	95	-	95
92	55,762	29,685	29,685	-	49	-	49
93	29,063	15,963	15,963	-	25	-	25
94	14,639	8,279	8,279	-	12	-	12
95	7,126	4,146	4,146	-	6	-	6
96	3,348	1,977	1,977	-	2	-	2
97	1,544	932	932	-	1	-	1
98	691	462	462	-	1	-	1
99	263	87	87	-	-	-	-
100	0	-	-	-	-	-	-
Totals					\$ 14,998,958,951	\$ -	\$ 14,998,958,951

Projection of Pension Plan Net Position and Benefit Payments



Measurement of the Net OPEB Liability

Regarding the sensitivity of the net OPEB liability to changes in the Single Discount Rate, the following presents the plan's net OPEB liability, calculated using a Single Discount Rate of 7.25%, as well as what the plan's net OPEB liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net OPEB Liability to the Single Discount Rate Assumption

Measurement Date June 30	Net OPEB Liability			Single Discount Rate Assumption
	1% Decrease	Current Single Discount Rate	1% Increase	
2016	\$ 526,463,381	\$ 484,105,215	\$ 447,486,556	7.25%
2017	497,606,504	457,233,955	422,254,184	7.25%

GASB No. 74 requires the sensitivity of the Net OPEB Liability to the healthcare cost trend assumption. Since the medical subsidy benefits are a fixed stipend, there is no sensitivity to change in the healthcare cost trend assumption.

Statement of Fiduciary Net Position as of June 30, 2017 OPEB

Assets

Cash and Deposits	\$	36,650
Receivables		
Accounts Receivable - Sale of Investments	\$	61,754
Accrued Interest and Other Dividends		68,304
Contributions		7,151,529
Accounts Receivable - Other		12,354
Total Receivables	<u>\$</u>	<u>7,293,941</u>
Investments		
Fixed Income	\$	7,088,500
Domestic Equities		11,465,601
International Equities		4,719,459
Real Estate		3,185,002
Other		5,596,255
Total Investments	<u>\$</u>	<u>32,054,817</u>
Total Assets	<u>\$</u>	<u>39,385,408</u>

Liabilities

Payables		
Accounts Payable - Purchase of Investments	\$	74,580
Accrued Expenses		-
Accounts Payable - Other		37,627
Total Liabilities	<u>\$</u>	<u>112,207</u>
Net Position Restricted for OPEB	<u>\$</u>	<u>39,273,201</u>

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2017 OPEB

Additions

Contributions	
Employer	\$ 59,196,827
Nonemployer contributing entities	0
Active Employees	0
Other	0
Total Contributions	<u>\$ 59,196,827</u>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 3,620,420
Interest and Dividends	530,791
Less Investment Expense	<u>(105,466)</u>
Net Investment Income	<u>\$ 4,045,745</u>
Other	<u>\$ 0</u>
Total Additions	<u>\$ 63,242,572</u>

Deductions

Benefit Payments	\$ 50,559,778
OPEB Plan Administrative Expense	31,713
Other	<u>5,186</u>
Total Deductions	<u>\$ 50,596,677</u>
Net Increase in Net Position	\$ 12,645,895

Net Position Restricted for OPEB

Beginning of Year	<u>\$ 26,627,306</u>
End of Year	<u>\$ 39,273,201</u>

Schedules of Required Supplementary Information

Schedule of Changes in Net OPEB Liability and Related Ratios

Ultimately 10 Fiscal Years Will Be Displayed

Fiscal year ending June 30,	2017	2016
Total OPEB liability		
Service cost	\$ 1,099,249	\$ 1,217,827
Interest on the total OPEB liability	35,235,164	36,541,607
Changes of benefit terms	0	0
Difference between expected and actual experience	0	(4,537,602)
Changes of assumptions	0	0
Benefit payments, including refunds of employee contributions	(50,559,778)	(51,805,133)
Net change in total OPEB liability	(14,225,365)	(18,583,301)
Total OPEB liability - beginning	510,732,521	529,315,822
Total OPEB liability - ending (a)	\$ 496,507,156	\$ 510,732,521
Plan fiduciary net position		
Contributions - Employer	\$ 59,196,827	\$ 58,174,145
Nonemployer contributing entities contributions	0	0
Contributions - Member	0	0
OPEB plan net investment income	4,045,745	148,536
Benefit payments, including refunds of employee contributions	(50,559,778)	(51,805,133)
OPEB plan administrative expense	(31,713)	(16,951)
Other custodial, professional and non-investment expenses, and contributions other than for contribution effort	(5,186)	(3,030)
Net change in plan fiduciary net position	12,645,895	6,497,567
Plan fiduciary net position - beginning	26,627,306	20,129,739
Plan fiduciary net position - ending (b)	\$ 39,273,201	\$ 26,627,306
Net OPEB liability - ending (a) - (b)	\$ 457,233,955	\$ 484,105,215
Plan fiduciary net position as a percentage of total OPEB liability		
	7.91 %	5.21 %
Covered-Employee Payroll*	\$ 2,667,611,532	\$ 2,601,403,606
Net OPEB liability as a percentage of covered-employee payroll	17.14 %	18.61 %

Notes to Schedule:

N/A

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

Schedules of Required Supplementary Information

Schedule of the Employers' Net OPEB Liability

Ultimately 10 Fiscal Years Will Be Displayed

FY Ending June 30,	Total OPEB Liability	Plan Net Position	Net OPEB Liability	Plan Net Position as a % of Total OPEB Liability	Covered Payroll*	Net OPEB Liability as a % of Covered Payroll
2016	\$ 510,732,521	\$ 26,627,306	\$ 484,105,215	5.21 %	\$ 2,601,403,606	18.61 %
2017	496,507,156	39,273,201	457,233,955	7.91 %	2,667,611,532	17.14 %

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

Schedule of OPEB Contributions

Ultimately 10 Fiscal Years Will Be Displayed

FY Ending June 30,	Actuarially Determined Contribution**	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2016	\$ 58,174,145	\$ 58,174,145	\$ -	\$ 2,601,403,606	2.24 %
2017	59,196,827	59,196,827	-	2,667,611,532	2.22 %

* 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 OPEB Contributions

Valuation Date: Statutory contribution rates for the 2016-2017 biennium were determined based on the June 30, 2013 actuarial valuation. Statutory 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 statutory requirement of solvency funding with the Board's funding policy to maintain a 20% margin.

Methods and Assumptions:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	Not applicable under statutory funding
Asset Valuation Method	5-Year smoothed market; 20% corridor
Price Inflation	2.5% per year
Wage Inflation	3.25% per year
Salary Increases	5.6% average, including inflation
Municipal Bond Rate	3.56% per year
Investment Rate of Return	7.25% per year, net of OPEB plan investment expense, including inflation for determining solvency contributions
Funding Discount Rate	3.25% 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 Healthy Annuitant and Employee generational mortality tables for males and females with credibility adjustments, adjusted for fully generational mortality improvements using Scale MP-2015, based on the last experience study.
Health Care Trend Rates:	Not applicable, given that the benefits are fixed stipends.
Aging factors	Not applicable, given that the benefits are fixed stipends.

NOTE: A full list of actuarial assumptions and the summary of benefit provisions can be found starting on page 51.

Summary of OPEB Participant Data As of June 30, 2016

For purposes of GASB No. 74 disclosures, the System has adopted a roll-forward methodology for accounting purposes. This means that the June 30, 2017 Total OPEB Liability is based on a roll-forward of the June 30, 2016 valuation. A brief summary of the June 30, 2016 census data is shown below.

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	10,160
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	-
Active Plan Members	<u>2,843</u>
Total Plan Members	13,003

Additional information regarding the covered population as of June 30, 2016 may be found in the actuarial valuation report issued October 28, 2016.

Calculation of the Single Discount Rate for OPEB

GASB Statement No. 74 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total OPEB 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 OPEB 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 contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on OPEB plan investments is 7.25%; the municipal bond rate is 3.56%; 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. Since the medical subsidy plan is closed to new hires, normal cost contributions for future hires are not included.

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

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.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Single Discount Rate Development

Projection of OPEB Plan Net Position Beginning July 1, 2017

(Years 1-50)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.250%
	(a)	(b)	(c)	(d)	(e)
1	\$ 39,273,201	\$ 45,077,743	\$ 49,578,116	\$ 36,321	\$ 2,685,729
2	37,422,237	46,495,133	48,984,428	34,889	2,623,211
3	37,521,264	19,077,871	48,557,895	33,525	1,669,144
4	9,676,860	47,430,684	48,152,831	32,152	674,707
5	9,597,269	46,918,565	47,654,520	30,727	668,496
6	9,499,082	46,169,194	46,941,220	29,262	660,145
7	9,357,940	45,228,995	46,030,694	27,767	648,909
8	9,177,383	44,088,063	44,917,715	26,219	634,878
9	8,956,391	42,824,186	43,666,594	24,653	618,457
10	8,707,788	41,398,886	42,256,212	23,097	599,958
11	8,427,323	39,918,506	40,772,010	21,551	579,815
12	8,132,083	38,371,986	39,219,549	19,989	558,678
13	7,823,209	36,742,656	37,585,847	18,436	536,495
14	7,498,076	35,063,519	35,896,289	16,950	513,347
15	7,161,704	33,341,946	34,161,406	15,522	489,485
16	6,816,207	31,599,677	32,401,259	14,117	465,123
17	6,465,632	29,836,154	30,618,888	12,719	440,428
18	6,110,606	28,082,156	28,840,639	11,317	415,602
19	5,756,408	26,343,257	27,075,763	9,887	390,899
20	5,404,914	24,607,367	25,315,756	8,425	366,326
21	5,054,426	22,911,579	23,590,233	7,025	342,025
22	4,710,772	21,277,361	21,922,246	5,781	318,357
23	4,378,462	19,680,718	20,295,600	4,706	295,371
24	4,054,246	18,176,068	18,753,080	3,799	273,247
25	3,746,681	16,770,794	17,308,305	3,047	252,382
26	3,458,506	15,446,235	15,948,009	2,433	232,784
27	3,187,083	14,227,591	14,691,026	1,934	214,489
28	2,936,203	13,106,307	13,533,475	1,530	197,606
29	2,705,111	12,073,484	12,467,243	1,203	182,054
30	2,492,202	11,121,187	11,484,285	939	167,719
31	2,295,884	10,242,638	10,577,538	729	154,498
32	2,114,753	9,432,271	9,741,119	561	142,300
33	1,947,642	8,688,298	8,972,518	429	131,066
34	1,794,059	8,002,506	8,264,422	325	120,729
35	1,652,548	7,368,761	7,610,427	243	111,194
36	1,521,833	6,783,615	7,006,535	181	102,387
37	1,401,120	6,242,479	6,448,211	133	94,249
38	1,289,505	5,740,907	5,930,943	96	86,717
39	1,186,089	5,274,691	5,450,427	68	79,730
40	1,090,015	4,839,911	5,002,630	48	73,229
41	1,000,477	4,433,140	4,583,982	33	67,161
42	916,763	4,051,435	4,191,398	22	61,480
43	838,257	3,692,423	3,822,356	14	56,146
44	764,457	3,354,223	3,474,839	9	51,127
45	694,959	3,035,415	3,147,311	5	46,399
46	629,457	2,735,011	2,838,676	3	41,943
47	567,732	2,452,388	2,548,223	1	37,747
48	509,643	2,187,201	2,275,539	1	33,803
49	455,107	1,939,285	2,020,415	0	30,106
50	404,083	1,708,572	1,782,757	0	26,654

Single Discount Rate Development

Projection of OPEB Plan Net Position Beginning July 1, 2017

(Years 51-100)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.250%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	\$ 356,551	\$ 1,495,027	\$ 1,562,520	\$ 0	\$ 23,446	\$ 312,504
52	312,504	1,298,577	1,359,636	0	20,482	271,927
53	271,927	1,119,093	1,173,983	0	17,760	234,797
54	234,797	956,302	1,005,313	0	15,277	201,063
55	201,063	809,838	853,275	0	13,030	170,655
56	170,655	679,233	717,417	0	11,013	143,483
57	143,483	563,897	597,165	0	9,218	119,433
58	119,433	463,108	491,815	0	7,636	98,363
59	98,363	376,018	400,533	0	6,258	80,107
60	80,107	301,669	322,371	0	5,070	64,474
61	64,474	239,020	256,295	0	4,059	51,259
62	51,259	186,963	201,193	0	3,209	40,239
63	40,239	144,338	155,902	0	2,505	31,180
64	31,180	109,966	119,231	0	1,931	23,846
65	23,846	82,696	90,008	0	1,468	18,002
66	18,002	61,422	67,105	0	1,103	13,421
67	13,421	45,115	49,462	0	818	9,892
68	9,892	32,837	36,109	0	601	7,222
69	7,222	23,760	26,183	0	437	5,237
70	5,237	17,172	18,938	0	317	3,788
71	3,788	12,479	13,747	0	229	2,749
72	2,749	9,194	10,092	0	167	2,018
73	2,018	6,934	7,563	0	124	1,513
74	1,513	5,399	5,838	0	94	1,168
75	1,168	4,368	4,675	0	74	935
76	935	3,677	3,894	0	60	779
77	779	3,212	3,368	0	51	674
78	674	2,892	3,009	0	45	602
79	602	2,666	2,757	0	40	551
80	551	2,499	2,573	0	37	515
81	515	2,369	2,432	0	35	486
82	486	2,262	2,318	0	33	464
83	464	2,169	2,220	0	32	444
84	444	2,084	2,132	0	30	426
85	426	2,005	2,050	0	29	410
86	410	1,927	1,971	0	28	394
87	394	1,847	1,890	0	27	378
88	378	1,765	1,807	0	26	361
89	361	1,679	1,721	0	25	344
90	344	1,588	1,630	0	23	326
91	326	1,493	1,534	0	22	307
92	307	1,393	1,434	0	21	287
93	287	1,290	1,330	0	19	266
94	266	1,183	1,223	0	18	245
95	245	1,075	1,114	0	16	223
96	223	965	1,002	0	15	200
97	200	853	889	0	13	178
98	178	741	775	0	12	155
99	155	632	664	0	10	133
100	133	528	558	0	9	112

Single Discount Rate Development

Present Values of Projected OPEB Benefits Beginning July 1, 2017

(Years 1-50)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected 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 All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=((c)/(1+SDR)^(a)-.5)
1	\$ 39,273,201	\$ 49,578,116	\$ 49,578,116	\$ 0	\$ 47,873,080	\$ 0	\$ 47,873,080
2	37,422,237	48,984,428	48,984,428	0	44,102,386	0	44,102,386
3	37,521,264	48,557,895	48,557,895	0	40,763,043	0	40,763,043
4	9,676,860	48,152,831	48,152,831	0	37,690,446	0	37,690,446
5	9,597,269	47,654,520	47,654,520	0	34,778,932	0	34,778,932
6	9,499,082	46,941,220	46,941,220	0	31,942,523	0	31,942,523
7	9,357,940	46,030,694	46,030,694	0	29,205,528	0	29,205,528
8	9,177,383	44,917,715	44,917,715	0	26,572,836	0	26,572,836
9	8,956,391	43,666,594	43,666,594	0	24,086,420	0	24,086,420
10	8,707,788	42,256,212	42,256,212	0	21,732,826	0	21,732,826
11	8,427,323	40,772,010	40,772,010	0	19,551,967	0	19,551,967
12	8,132,083	39,219,549	39,219,549	0	17,536,125	0	17,536,125
13	7,823,209	37,585,847	37,585,847	0	15,669,606	0	15,669,606
14	7,498,076	35,896,289	35,896,289	0	13,953,591	0	13,953,591
15	7,161,704	34,161,406	34,161,406	0	12,381,546	0	12,381,546
16	6,816,207	32,401,259	32,401,259	0	10,949,738	0	10,949,738
17	6,465,632	30,618,888	30,618,888	0	9,647,926	0	9,647,926
18	6,110,606	28,840,639	28,840,639	0	8,473,291	0	8,473,291
19	5,756,408	27,075,763	27,075,763	0	7,417,040	0	7,417,040
20	5,404,914	25,315,756	25,315,756	0	6,466,117	0	6,466,117
21	5,054,426	23,590,233	23,590,233	0	5,618,075	0	5,618,075
22	4,710,772	21,922,246	21,922,246	0	4,867,916	0	4,867,916
23	4,378,462	20,295,600	20,295,600	0	4,202,064	0	4,202,064
24	4,054,246	18,753,080	18,753,080	0	3,620,229	0	3,620,229
25	3,746,681	17,308,305	17,308,305	0	3,115,449	0	3,115,449
26	3,458,506	15,948,009	15,948,009	0	2,676,550	0	2,676,550
27	3,187,083	14,691,026	14,691,026	0	2,298,919	0	2,298,919
28	2,936,203	13,533,475	13,533,475	0	1,974,620	0	1,974,620
29	2,705,111	12,467,243	12,467,243	0	1,696,084	0	1,696,084
30	2,492,202	11,484,285	11,484,285	0	1,456,745	0	1,456,745
31	2,295,884	10,577,538	10,577,538	0	1,251,028	0	1,251,028
32	2,114,753	9,741,119	9,741,119	0	1,074,222	0	1,074,222
33	1,947,642	8,972,518	8,972,518	0	922,576	0	922,576
34	1,794,059	8,264,422	8,264,422	0	792,324	0	792,324
35	1,652,548	7,610,427	7,610,427	0	680,303	0	680,303
36	1,521,833	7,006,535	7,006,535	0	583,982	0	583,982
37	1,401,120	6,448,211	6,448,211	0	501,115	0	501,115
38	1,289,505	5,930,943	5,930,943	0	429,759	0	429,759
39	1,186,089	5,450,427	5,450,427	0	368,243	0	368,243
40	1,090,015	5,002,630	5,002,630	0	315,141	0	315,141
41	1,000,477	4,583,982	4,583,982	0	269,248	0	269,248
42	916,763	4,191,398	4,191,398	0	229,547	0	229,547
43	838,257	3,822,356	3,822,356	0	195,185	0	195,185
44	764,457	3,474,839	3,474,839	0	165,444	0	165,444
45	694,959	3,147,311	3,147,311	0	139,720	0	139,720
46	629,457	2,838,676	2,838,676	0	117,500	0	117,500
47	567,732	2,548,223	2,548,223	0	98,347	0	98,347
48	509,643	2,275,539	2,275,539	0	81,887	0	81,887
49	455,107	2,020,415	2,020,415	0	67,791	0	67,791
50	404,083	1,782,757	1,782,757	0	55,773	0	55,773

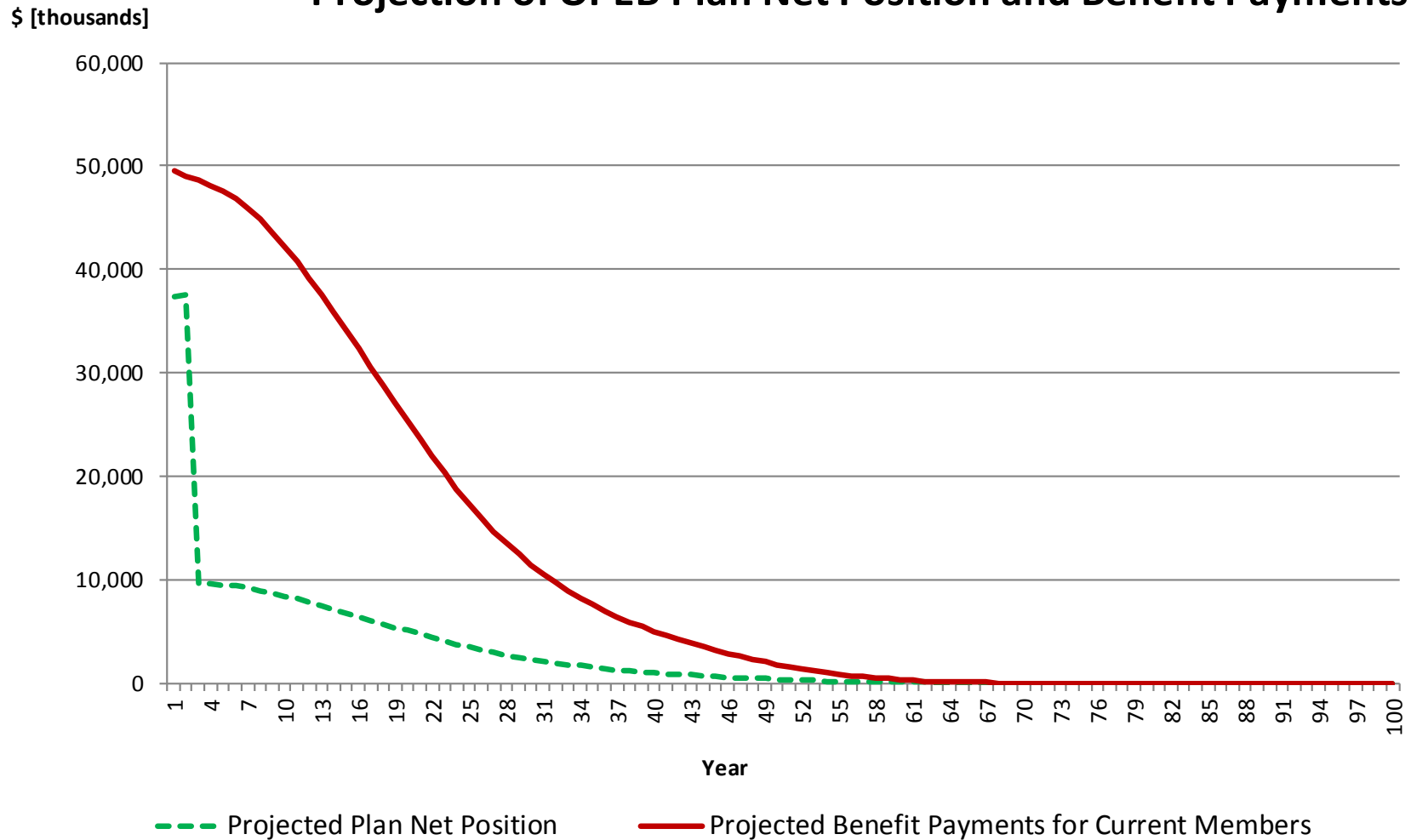
Single Discount Rate Development

Present Values of Projected OPEB Benefits Beginning July 1, 2017

(Years 50-100)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected 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 All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^a ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+SDR)) ^a (a-.5)
51	\$ 356,551	\$ 1,562,520	\$ 1,562,520	\$ 0	\$ 45,579	\$ 0	\$ 45,579
52	312,504	1,359,636	1,359,636	0	36,980	0	36,980
53	271,927	1,173,983	1,173,983	0	29,772	0	29,772
54	234,797	1,005,313	1,005,313	0	23,771	0	23,771
55	201,063	853,275	853,275	0	18,812	0	18,812
56	170,655	717,417	717,417	0	14,748	0	14,748
57	143,483	597,165	597,165	0	11,446	0	11,446
58	119,433	491,815	491,815	0	8,789	0	8,789
59	98,363	400,533	400,533	0	6,674	0	6,674
60	80,107	322,371	322,371	0	5,009	0	5,009
61	64,474	256,295	256,295	0	3,713	0	3,713
62	51,259	201,193	201,193	0	2,718	0	2,718
63	40,239	155,902	155,902	0	1,963	0	1,963
64	31,180	119,231	119,231	0	1,400	0	1,400
65	23,846	90,008	90,008	0	986	0	986
66	18,002	67,105	67,105	0	685	0	685
67	13,421	49,462	49,462	0	471	0	471
68	9,892	36,109	36,109	0	320	0	320
69	7,222	26,183	26,183	0	217	0	217
70	5,237	18,938	18,938	0	146	0	146
71	3,788	13,747	13,747	0	99	0	99
72	2,749	10,092	10,092	0	68	0	68
73	2,018	7,563	7,563	0	47	0	47
74	1,513	5,838	5,838	0	34	0	34
75	1,168	4,675	4,675	0	25	0	25
76	935	3,894	3,894	0	20	0	20
77	779	3,368	3,368	0	16	0	16
78	674	3,009	3,009	0	13	0	13
79	602	2,757	2,757	0	11	0	11
80	551	2,573	2,573	0	10	0	10
81	515	2,432	2,432	0	9	0	9
82	486	2,318	2,318	0	8	0	8
83	464	2,220	2,220	0	7	0	7
84	444	2,132	2,132	0	6	0	6
85	426	2,050	2,050	0	6	0	6
86	410	1,971	1,971	0	5	0	5
87	394	1,890	1,890	0	4	0	4
88	378	1,807	1,807	0	4	0	4
89	361	1,721	1,721	0	4	0	4
90	344	1,630	1,630	0	3	0	3
91	326	1,534	1,534	0	3	0	3
92	307	1,434	1,434	0	2	0	2
93	287	1,330	1,330	0	2	0	2
94	266	1,223	1,223	0	2	0	2
95	245	1,114	1,114	0	1	0	1
96	223	1,002	1,002	0	1	0	1
97	200	889	889	0	1	0	1
98	178	775	775	0	1	0	1
99	155	664	664	0	1	0	1
100	133	0	0	0	0	0	0
Totals					\$ 500,875,361	\$ 0	\$ 500,875,361

Projection of OPEB Plan Net Position and Benefit Payments



SECTION C

ACTUARIAL SECTION

Summary of Changes from June 30, 2016 to June 30, 2017 (\$ in Millions)

	Pension				
	Employees	Teachers	Police	Fire	Total
Reconciliation of UAAL					
Expected	\$1,614.5	\$2,257.8	\$888.1	\$387.1	\$5,147.5
Impact of (Gain)Loss	(9.0)	(73.1)	(14.9)	(7.7)	(104.7)
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	\$1,605.5	\$2,184.7	\$873.2	\$379.4	\$5,042.8
Funded %					
Prior Valuation	61.2 %	55.8 %	63.7 %	66.1 %	60.0 %
Expected Change	1.3 %	0.7 %	0.9 %	0.9 %	1.0 %
Impact of Gain(Loss)	0.5 %	1.2 %	0.8 %	0.9 %	0.8 %
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	63.0 %	57.7 %	65.4 %	67.9 %	61.8 %

	Medical Subsidy				
	State Employees	Political Subdivision Employees	Teachers	Police & Fire	Total
Reconciliation of UAAL					
Expected	\$65.2	\$36.7	\$232.0	\$334.3	\$668.2
Impact of (Gain)Loss	(0.7)	(1.3)	3.0	(11.5)	(10.5)
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	\$64.5	\$35.4	\$235.0	\$322.8	\$657.7

Reconciliation of contribution rates will be provided in the funding report.

The pension funded percent of 61.8% is the ratio of the actuarial value of assets to the actuarial accrued liability for NHRS in total. That ratio is 62.5% 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:	2015	2016	2017	2018	2019	2020	2021
A. Funding Value Beginning of Year	\$ 6,721,799,334	\$ 7,300,276,091	\$ 7,663,416,136				
B. Market Value End of Year	7,530,056,191	7,460,944,677	8,293,261,180				
C. Market Value Beginning of Year	7,414,061,986	7,530,056,191	7,460,944,677				
D. Non-Investment Net Cash Flow	(134,800,821)	(131,267,165)	(150,426,632)				
E. Investment Income							
E1. Market Total: B - C - D	250,795,026	62,155,651	982,743,135				
E2. Assumed Rate	7.75%	7.25%	7.25%				
E3. Amount for Immediate Recognition	515,715,917	524,511,582	550,144,704				
E4. Amount for Phased-In Recognition: E1-E3	(264,920,891)	(462,355,931)	432,598,431				
F. Phased-In Recognition of Investment Income							
F1. Current Year: 0.20 x E4	(52,984,178)	(92,471,186)	86,519,686				
F2. First Prior Year	126,027,156	(52,984,178)	(92,471,186)	\$ 86,519,686			
F3. Second Prior Year	74,311,509	126,027,156	(52,984,178)	(92,471,186)	\$ 86,519,686		
F4. Third Prior Year	(84,987,675)	74,311,509	126,027,156	(52,984,178)	(92,471,186)	\$ 86,519,686	
F5. Fourth Prior Year	135,194,849	(84,987,673)	74,311,510	126,027,155	(52,984,179)	(92,471,187)	\$ 86,519,687
F6. Total Recognized Investment Gain	197,561,661	(30,104,372)	141,402,988	67,091,477	(58,935,679)	(5,951,501)	86,519,687
G. Preliminary Funding Value End of Year: A + D + E3 + F6	\$7,300,276,091	\$ 7,663,416,136	\$ 8,204,537,196				
H. Additional Recognized G/L due to Corridor	-	-	-				
I. Final Funding Value after 20% Corridor	\$ 7,300,276,091	\$ 7,663,416,136	\$ 8,204,537,196				
J. Difference between Market & Funding Value: B-I	\$ 229,780,100	\$ (202,471,459)	\$ 88,723,984				
K. Recognized Rate of Return	10.72%	6.83%	9.11%				
L. Market Rate of Return	3.41%	0.83%	13.31%				
M. Ratio of Funding Value to Market Value	96.95%	102.71%	98.93%				

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

	Employees	Teachers	Police	Fire	Total
Allocated Fund Assets (Actuarial Value)	\$ 2,756,009,132	\$ 2,985,518,581	\$ 1,658,311,769	\$ 804,697,714	\$ 8,204,537,196
Less Reserve for TSAs	-	-	-	-	-
Less 401(h) Account	21,451,544	6,513,728	7,403,955	3,483,817	38,853,044
Net Pension Valuation Assets	\$2,734,557,588	\$2,979,004,853	\$1,650,907,814	\$801,213,897	\$ 8,165,684,152

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 medical subsidy market value of assets.

Development of Pension Actuarial Liabilities June 30, 2017

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	\$ 6,199,399,972	\$ 1,153,675,034	\$ 5,045,724,938
Disability benefits likely to be paid to present active members	240,350,766	122,688,151	117,662,615
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	76,344,820	35,099,795	41,245,025
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	1,090,952,716	676,691,273	414,261,443
Benefits likely to be paid to current inactive and vested deferred members	274,115,019	-	274,115,019
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	7,315,440,334	-	7,315,440,334
Total	\$ 15,196,603,627	\$ 1,988,154,253	\$ 13,208,449,374
Actuarial Value of Assets	\$ 8,165,684,152	-	\$ 8,165,684,152
Liabilities to be Covered by Future Contributions	\$ 7,030,919,475	\$ 1,988,154,253	\$ 5,042,765,222
Funded Ratio			61.8%

Actuarial Balance Sheet as of June 30, 2017

Assets and Present Value of Expected Future Contributions

	Pension	Medical Subsidy
A. Present valuation assets		
1. Net assets from system financial statements	\$ 8,253,987,979	\$ 39,273,201
2. Funding value adjustment	(88,303,827)	(420,157)
3. Valuation assets	8,165,684,152	38,853,044
B. Actuarial present value of expected future employer contributions		
1. For normal costs	388,752,668	11,616,236
2. For unfunded actuarial accrued liability	5,042,765,222	657,695,295
3. Total	5,431,517,890	669,311,531
C. Actuarial present value of expected future member contributions	1,599,401,585	-
D. Total Present and Expected Future Resources	\$ 15,196,603,627	\$ 708,164,575

Present Value of Expected Future Benefit Payments

A. To retirees and beneficiaries	\$ 7,315,440,334	\$ 568,676,429
B. To vested terminated members	197,509,100	-
C. To non-vested terminated members (outstanding refunds)	76,605,919	-
D. To present active members		
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	5,618,894,021	127,871,910
2. Allocated to service likely to be rendered after valuation date	1,988,154,253	11,616,236
3. Total	7,607,048,274	139,488,146
E. Total Actuarial Present Value of Expected Future Benefit Payments	\$ 15,196,603,627	\$ 708,164,575

Experience Gain/(Loss) -- June 30, 2017

	Pension	Medical Subsidy
(1) Actual UAAL* as of June 30, 2016	\$ 5,096,799,491	\$ 702,781,993
(2) Normal cost from 2016 valuation	272,017,989	2,680,011
(3) Actual contributions (employer and employee)	579,713,841	59,196,827
(4) Interest accrual: $[(1)+1/2 [(2)-(3)]] \times \{.0725 \text{ for pension};$.0325 for medical subsidy}	358,363,988	21,922,017
(5) Expected UAAL end of year: (1)+(2)-(3)+(4)	5,147,467,627	668,187,194
(6) Change from legislation	-	-
(7) Change from revised actuarial assumptions	-	-
(8) Expected UAAL after changes: (5)+(6)+(7)	5,147,467,627	668,187,194
(9) Actual UAAL as of June 30, 2017	5,042,765,222	657,695,295
(10) Gain/(loss) for year: (8)-(9)	104,702,405	10,491,899
(11) Gain/(loss) as percent of actuarial accrued liabilities at start of year	0.8 %	1.4 %

* *Unfunded Actuarial Accrued Liabilities.*

Summary of Risk Measures Pension

Valuation Year	Funded Ratio								Ratio to Payroll				
	Percentage of AAL Covered by Net Funding Value of Assets Available								Actual Total Payroll / Expected Total Payroll	Net Cash Flow as a Percent of MVA	Ratio of Actives to Retirees	UAAL Amortization Period	UAAL
	NHRS in Total	Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members	Return	Rate							
June 30, 2008	67.8%	100%	83%	0%	101%	(1.2)%	2.2	30	109%	230%	339%	***	***
June 30, 2009*	58.3	100	63	0	103	(2.3)	2.1	30	145	202	346	23%	0.3%
June 30, 2010	58.5	100	61	0	98	(2.8)	2.0	30	150	211	361	23	0.3%
June 30, 2011#*	57.4	100	63	0	98	(3.1)	1.8	29	169	228	397	26	0.3%
June 30, 2012	56.1	100	58	0	96	(2.3)	1.7	28	183	234	417	28	0.3%
June 30, 2013	56.7	100	59	0	97	(2.9)	1.6	27	185	243	428	29	0.3%
June 30, 2014	60.7	100	67	0	97	(1.7)	1.6	26	173	267	440	32	0.4%
June 30, 2015#^	59.2	100	66	0	99	(1.8)	1.5	25	195	283	478	33	0.4%
June 30, 2016	60.0	100	67	0	98	(1.7)	1.5	24	196	294	489	34	0.4%
June 30, 2017	61.8	100	72	0	99	(2.0)	1.3	23	189	306	495	36	0.5%

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 in total and in each category.

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

Net Cash Flow as a Percent of MVA: This ratio is expected to be negative and trend toward the negative of the real return assumption.

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.

Standard Deviation of Contribution Rate: This measure illustrates the impact of a one standard deviation change in investment return on the annual contribution rate. Absent a change in amortization policy, this rate is expected to increase substantially as the amortization period decreases.

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) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members (Employer Financed Portion)		(1)	(2)	(3)
	2008	\$2,312,069	\$3,618,118		\$1,891,129	\$5,302,034	100%
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%
2017	2,915,811	7,315,440	2,977,198	8,165,684	100%	72%	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%	
Employees	2017	1,133,071	2,272,436	934,564	2,734,558	100%	70%	0%	
Teachers	2017	1,132,876	2,819,228	1,211,560	2,979,005	100%	65%	0%	
Police	2017	426,606	1,526,761	570,755	1,650,908	100%	80%	0%	
Fire	2017	223,258	697,015	260,320	801,214	100%	83%	0%	

After reflection of changes in assumptions.

* After reflection of changes in legislation.

Development of Pension Actuarial Liabilities

June 30, 2017

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	\$ 2,107,629,587	\$ 347,896,224	\$ 1,759,733,363
Disability benefits likely to be paid to present active members	75,759,051	44,373,905	31,385,146
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	37,761,176	16,615,808	21,145,368
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	394,312,743	265,785,561	128,527,182
Benefits likely to be paid to current inactive and vested deferred members	126,844,033	-	126,844,033
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	2,272,435,799	-	2,272,435,799
Total	\$ 5,014,742,389	\$ 674,671,498	\$ 4,340,070,891
Actuarial Value of Assets	\$ 2,734,557,588	-	\$ 2,734,557,588
Liabilities to be Covered by Future Contributions	\$ 2,280,184,801	\$ 674,671,498	\$ 1,605,513,303
Funded Ratio			63.0%

Development of Pension Actuarial Liabilities

June 30, 2017

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	\$ 2,481,905,032	\$ 446,292,003	\$ 2,035,613,029
Disability benefits likely to be paid to present active members	53,193,025	23,700,170	29,492,855
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	22,492,378	9,742,553	12,749,825
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	416,044,198	265,675,018	150,369,180
Benefits likely to be paid to current inactive and vested deferred members	116,210,208	-	116,210,208
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	2,819,228,419	-	2,819,228,419
Total	\$ 5,909,073,260	\$ 745,409,744	\$ 5,163,663,516
Actuarial Value of Assets	\$ 2,979,004,853	-	\$ 2,979,004,853
Liabilities to be Covered by Future Contributions	\$ 2,930,068,407	\$ 745,409,744	\$ 2,184,658,663
Funded Ratio			57.7%

Development of Pension Actuarial Liabilities

June 30, 2017

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	\$ 1,038,389,653	\$ 215,046,132	\$ 823,343,521
Disability benefits likely to be paid to present active members	76,389,141	36,668,590	39,720,551
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	10,003,470	5,531,957	4,471,513
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	218,241,870	115,580,738	102,661,132
Benefits likely to be paid to current inactive and vested deferred members	27,164,521	-	27,164,521
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	1,526,761,108	-	1,526,761,108
Total	\$ 2,896,949,763	\$ 372,827,417	\$ 2,524,122,346
Actuarial Value of Assets	\$ 1,650,907,814	-	\$ 1,650,907,814
Liabilities to be Covered by Future Contributions	\$ 1,246,041,949	\$ 372,827,417	\$ 873,214,532
Funded Ratio			65.4%

Development of Pension Actuarial Liabilities

June 30, 2017

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	\$ 571,475,700	\$ 144,440,675	\$ 427,035,025
Disability benefits likely to be paid to present active members	35,009,549	17,945,486	17,064,063
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	6,087,796	3,209,477	2,878,319
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	62,353,905	29,649,956	32,703,949
Benefits likely to be paid to current inactive and vested deferred members	3,896,257	-	3,896,257
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	697,015,008	-	697,015,008
Total	\$ 1,375,838,215	\$ 195,245,594	\$ 1,180,592,621
Actuarial Value of Assets	\$ 801,213,897	-	\$ 801,213,897
Liabilities to be Covered by Future Contributions	\$ 574,624,318	\$ 195,245,594	\$ 379,378,724
Funded Ratio			67.9%

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 20 years from the contribution effective date (Fiscal Year 2020).

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 2017 valuation are for the 2020-2021 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 20-year period beginning on July 1, 2019. 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, 2015 valuation effective from July 1, 2017 to June 30, 2019 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. However, for determining the solvency contribution rate for the medical subsidy account and GASB 74, 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.

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	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

Retiremen 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.

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

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 1.25 1007	151 1.25 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 0.35	3 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 with credibility adjustments and adjusted for fully generational mortality improvements using Scale MP-2015.

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

Employees

Sample Attained Ages	Probability of Dying Next Year*		Future Life Expectancy (years)*			
	Men	Women	Men	Women		
35	0.130%	0.132%	48.84	50.74		
40	0.191%	0.191%	43.63	45.61		
45	0.283%	0.242%	38.53	40.56		
50	0.433%	0.322%	33.59	35.58		
55	0.639%	0.453%	28.87	30.72		
60	0.885%	0.652%	24.38	26.03		
65	1.243%	0.976%	20.09	21.52		
70	1.902%	1.560%	16.03	17.26		
75	3.096%	2.574%	12.31	13.35		
80	5.221%	4.374%	9.05	9.90		
Ref:	2135	x	1.16	2136	x	1.24

Teachers

Sample Attained Ages	Probability of Dying Next Year*		Future Life Expectancy (years)*			
	Men	Women	Men	Women		
35	0.112%	0.093%	50.50	54.55		
40	0.165%	0.134%	45.26	49.34		
45	0.244%	0.170%	40.12	44.20		
50	0.374%	0.226%	35.12	39.11		
55	0.551%	0.318%	30.32	34.12		
60	0.763%	0.457%	25.74	29.27		
65	1.072%	0.685%	21.35	24.57		
70	1.639%	1.094%	17.17	20.08		
75	2.669%	1.806%	13.32	15.90		
80	4.501%	3.069%	9.92	12.13		
Ref:	2135	x	1.00	2136	x	0.87

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

Valuation Assumptions

Police

Sample Attained	Probability of Dying Next Year*		Future Life Expectancy (years)*			
	Ages	Men	Women	Men	Women	
35		0.111%	0.113%	50.61	52.43	
40		0.163%	0.163%	45.37	47.26	
45		0.242%	0.207%	40.23	42.17	
50		0.370%	0.276%	35.22	37.14	
55		0.545%	0.387%	30.42	32.22	
60		0.755%	0.557%	25.84	27.45	
65		1.061%	0.834%	21.43	22.85	
70		1.623%	1.333%	17.25	18.48	
75		2.643%	2.200%	13.39	14.45	
80		4.456%	3.739%	9.98	10.85	
Ref:	2135	x	0.99	2136	x	1.06

Fire

Sample Attained	Probability of Dying Next Year*		Future Life Expectancy (years)*			
	Ages	Men	Women	Men	Women	
35		0.112%	0.108%	50.50	52.95	
40		0.165%	0.155%	45.26	47.77	
45		0.244%	0.197%	40.12	42.66	
50		0.374%	0.263%	35.12	37.62	
55		0.551%	0.369%	30.32	32.68	
60		0.763%	0.531%	25.74	27.89	
65		1.072%	0.795%	21.35	23.27	
70		1.639%	1.270%	17.17	18.87	
75		2.669%	2.097%	13.32	14.79	
80		4.501%	3.562%	9.92	11.16	
Ref:	2135	x	1.00	2136	x	1.01

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

Valuation Assumptions

Disabled Mortality

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

Sample Ages	<u>Employees</u>	
	<u>Probability of Occurrence Next Year*</u>	
	<u>Disabled Death</u>	
	<u>Men</u>	<u>Women</u>
20	0.045%	0.021%
25	0.198%	0.101%
30	0.504%	0.276%
35	0.916%	0.551%
40	1.335%	0.824%
45	1.734%	1.054%
50	2.175%	1.387%
55	2.604%	1.810%
Ref	2137	2138
	1.16	1.24

Sample Ages	<u>Teachers</u>	
	<u>Probability of Occurrence Next Year*</u>	
	<u>Disabled Death</u>	
	<u>Men</u>	<u>Women</u>
20	0.039%	0.015%
25	0.171%	0.071%
30	0.435%	0.194%
35	0.790%	0.387%
40	1.150%	0.578%
45	1.495%	0.739%
50	1.875%	0.973%
55	2.244%	1.270%
Ref	2137	2138
	1.00	0.87

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

Valuation Assumptions

Police

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Men	Women
20	0.039%	0.018%
25	0.169%	0.087%
30	0.430%	0.236%
35	0.782%	0.471%
40	1.139%	0.705%
45	1.480%	0.901%
50	1.856%	1.186%
55	2.222%	1.548%
Ref	2137	2138
	0.99	1.06

Fire

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Men	Women
20	0.039%	0.017%
25	0.171%	0.082%
30	0.435%	0.225%
35	0.790%	0.449%
40	1.150%	0.671%
45	1.495%	0.858%
50	1.875%	1.130%
55	2.244%	1.475%
Ref	2137	2138
	1.00	1.01

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

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 with credibility adjustments and adjusted for fully generational mortality improvements using Scale MP-2015. The probabilities of dying prior to retirement at sample attained ages were as follows:

Employees

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Men			Women		
20	0.038%			0.017%		
25	0.047%			0.017%		
30	0.047%			0.026%		
35	0.056%			0.037%		
40	0.066%			0.050%		
45	0.100%			0.075%		
50	0.180%			0.128%		
55	0.311%			0.209%		
Ref	2133	x	1.16	2134	x	1.24

Teachers

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Men			Women		
20	0.033%			0.012%		
25	0.041%			0.012%		
30	0.040%			0.019%		
35	0.048%			0.026%		
40	0.057%			0.035%		
45	0.087%			0.053%		
50	0.155%			0.090%		
55	0.268%			0.147%		
Ref	2133	x	1.00	2134	x	0.87

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

Valuation Assumptions

Police

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Men			Women		
20			0.032%			0.015%
25			0.040%			0.015%
30			0.040%			0.023%
35			0.048%			0.032%
40			0.056%			0.042%
45			0.086%			0.064%
50			0.153%			0.110%
55			0.265%			0.179%
Ref	2133	x	0.99	2134	x	1.06

Fire

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Men			Women		
20			0.033%			0.014%
25			0.041%			0.014%
30			0.040%			0.022%
35			0.048%			0.030%
40			0.057%			0.040%
45			0.087%			0.061%
50			0.155%			0.105%
55			0.268%			0.170%
Ref	2133	x	1.00	2134	x	1.01

* Applicable to calendar year 2017. Rates and life expectancy in future years are determined by the MP-2015 projection scale. The rates shown include the credibility adjustment for each member classification.

Weighting of Mortality

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

	Employees	Teachers	Police	Fire
Ordinary	98%	98%	50%	50%
Accidental	2%	2%	50%	50%

Miscellaneous and Technical Assumptions

<i>Administrative & Investment Expenses</i>	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.
<i>Benefit Service</i>	Exact Fractional service is used to determine the amount of benefit payable.
<i>COLA</i>	None assumed.
<i>Decrement Operation</i>	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.
<i>Decrement Timing</i>	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.
<i>Eligibility Testing</i>	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.
<i>Forfeitures</i>	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.
<i>Incidence of Contributions</i>	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.
<i>Liability Adjustments</i>	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.

<i>Service Credit Accruals</i>	It is assumed that members accrue one year of service credit per year.
<i>Service Purchases</i>	One month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.
<i>Split Benefits</i>	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.
<i>Data Adjustments</i>	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.
<i>Medical Subsidy</i>	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.
<i>IRC Section 415(b) and 401(a)(17)</i>	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

Statute	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.
Effective Date	July 1, 1967
Plan Year	July 1 through June 30
Type of Plan	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
Eligibility Requirements	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.
Creditable Service	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
Earnable Compensation	<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

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 1/60th of AFC times creditable service (1/66th 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 1/66th 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	<p>Eligibility: 10 or more years of creditable service.</p> <p>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.</p>
Accidental Disability	<p>Eligibility: Permanently disabled in the performance of duty.</p> <p>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.</p>
Accidental Death Benefits	<p>Eligibility: Accidental death in the performance of duty.</p> <p>Benefit: 50% times AFC.</p>
Ordinary Death Benefits	<p>Eligibility: Death other than accidental death.</p> <p>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.</p> <p>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.</p>
Post Retirement Death	<p>Not applicable.</p>
Optional Forms	<p>Each of the following options shall be of equivalent actuarial value to the allowance payable in the absence of election of an option.</p> <p>Option 1. Full cash refund. Option 2. 100% Joint and Survivor. Option 3. 50% Joint and Survivor. Option 4. Other Joint and Survivor.</p>
Vested Termination	<p>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.</p>

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

Statute	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.
Effective Date	July 1, 1967
Plan Year	July 1 through June 30
Type of Plan	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
Eligibility Requirements	Any permanent policeman or permanent fireman becomes a Group II member as a condition of employment.
Creditable Service	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
Earnable Compensation	<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

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.

Plan Provisions – Group II

Creditable Service on January 1, 2012	Minimum Years of	Minimum Age Attained	Annuity Multiplier
(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%

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 2/3 of AFC. If a member has more than 26-2/3 years of service, the member will receive a supplemental disability benefit equal to 2-1/2% of AFC times years of creditable service in excess of 26-2/3 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 2/3 of AFC. If a member has more than 33-1/3 years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of 33-1/3 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 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 ¼ 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 2/3 of AFC. If a member has more than 33-1/3 years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of 33-1/3 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 21-130]** - 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:

	Monthly Amounts	
	Pre-65	Post-65
Single	\$375.56	\$236.84
Couple	\$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.

SECTION D

STATISTICAL SECTION

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	4.0 %
2009	2,152	51,234	521	8,349	24,501	443,325	18,094	3.3 %
2010	2,161	50,732	817	12,002	25,845	482,055	18,652	3.1 %
2011	1,965	42,344	680	10,051	27,130	514,348	18,959	1.6 %
2012	2,073	41,213	749	11,543	28,454	544,018	19,119	0.8 %
2013	2,153	43,865	878	14,738	29,729	573,145	19,279	0.8 %
2014	2,105	42,200	780	12,676	31,054	602,669	19,407	0.7 %
2015 #	2,731	54,769	2,435	20,416	31,350	637,022	20,320	4.7 %
2016	2,208	53,489	782	12,236	32,776	678,275	20,694	1.8 %
2017	3,794	55,619	876	20,782	35,694	713,112	19,978	(3.5)%

* 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						
45 - 49	21	\$ 149,918	\$ 7,139	6	\$ 30,311	\$ 5,052
50 - 54	86	1,015,667	11,810	66	853,164	12,927
55 - 59	251	4,410,471	17,572	290	4,950,441	17,070
60 - 64	970	20,370,676	21,001	1,350	22,125,869	16,390
65 - 69	1,683	29,345,495	17,436	2,470	31,164,719	12,617
70 - 74	1,525	23,117,960	15,159	2,028	22,127,157	10,911
75 - 79	856	11,836,501	13,828	1,180	11,528,638	9,770
80 - 84	577	7,862,887	13,627	727	6,457,906	8,883
85 - 89	300	3,931,118	13,104	407	3,307,268	8,126
90 - 94	120	1,407,952	11,733	193	1,478,108	7,659
95 - 99	21	186,876	8,899	36	250,086	6,947
100 & Over	1	1,713	1,713	9	53,648	5,961
TOTAL	6,411	\$ 103,637,234	\$ 16,166	8,762	\$ 104,327,315	\$ 11,907

DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
30 - 34	1	\$ 13,901	\$ 13,901			
35 - 39	1	17,391	17,391	5	\$ 73,016	\$ 14,603
40 - 44	3	48,099	16,033	6	80,216	13,369
45 - 49	12	175,922	14,660	13	160,599	12,354
50 - 54	39	635,400	16,292	42	544,847	12,973
55 - 59	71	1,016,084	14,311	82	1,021,868	12,462
60 - 64	83	1,185,111	14,278	106	1,412,242	13,323
65 - 69	100	1,411,218	14,112	107	1,263,351	11,807
70 - 74	61	883,078	14,477	76	941,006	12,382
75 - 79	32	426,405	13,325	37	491,759	13,291
80 - 84	12	140,592	11,716	9	125,546	13,950
85 - 89	4	56,490	14,123	3	32,160	10,720
90 - 94	1	9,977	9,977	3	37,600	12,533
95 - 99				1	20,296	20,296
100 & Over						
TOTAL	420	\$ 6,019,668	\$ 14,333	490	\$ 6,204,506	\$ 12,662

Retirees and Beneficiaries Age Distribution Employees

BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
Under 20	2	\$ 3,695	\$ 1,848	1	\$ 1,774	\$ 1,774
20 - 24				3	11,422	3,807
25 - 29	3	32,175	10,725	2	6,357	3,179
30 - 34	2	7,136	3,568			
35 - 39	4	12,078	3,020	4	16,290	4,073
40 - 44	5	31,116	6,223	8	44,062	5,508
45 - 49	6	23,876	3,979	16	60,609	3,788
50 - 54	12	64,399	5,367	23	180,447	7,846
55 - 59	17	91,182	5,364	52	689,517	13,260
60 - 64	33	212,762	6,447	86	990,484	11,517
65 - 69	35	286,764	8,193	156	1,951,011	12,506
70 - 74	44	411,723	9,357	185	2,338,104	12,638
75 - 79	41	299,869	7,314	204	2,407,755	11,803
80 - 84	24	154,232	6,426	227	2,745,614	12,095
85 - 89	20	155,728	7,786	163	1,967,646	12,071
90 - 94	12	93,530	7,794	81	762,144	9,409
95 - 99	1	10,627	10,627	16	114,913	7,182
100 & Over				2	8,852	4,426
TOTAL	261	\$ 1,890,892	\$ 7,245	1,229	\$ 14,297,001	\$ 11,633

Retirees and Beneficiaries Age Distribution Teachers

SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
50 - 54	7	\$ 115,525	\$ 16,504	31	\$ 403,839	\$ 13,027
55 - 59	62	1,344,478	21,685	214	4,598,891	21,490
60 - 64	393	10,959,078	27,886	1,458	34,518,717	23,675
65 - 69	999	24,219,520	24,244	2,993	65,699,668	21,951
70 - 74	940	22,509,223	23,946	2,159	43,194,612	20,007
75 - 79	409	9,761,517	23,867	885	17,129,116	19,355
80 - 84	261	6,440,359	24,676	513	10,095,977	19,680
85 - 89	116	2,795,802	24,102	242	4,519,549	18,676
90 - 94	30	580,473	19,349	114	1,898,463	16,653
95 - 99	4	59,661	14,915	44	664,512	15,103
100 & Over	1	16,715	16,715	8	74,095	9,262
TOTAL	3,222	\$ 78,802,351	\$ 24,458	8,661	\$ 182,797,439	\$ 21,106

DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
40 - 44				2	\$ 22,485	\$ 11,243
45 - 49	2	\$ 33,375	\$ 16,688	3	51,030	17,010
50 - 54	3	61,469	20,490	10	165,706	16,571
55 - 59	5	79,768	15,954	22	405,347	18,425
60 - 64	2	28,119	14,060	28	526,827	18,815
65 - 69	7	96,860	13,837	33	592,075	17,942
70 - 74	8	175,760	21,970	22	358,665	16,303
75 - 79	5	108,266	21,653	20	343,153	17,158
80 - 84	4	82,950	20,738	2	42,968	21,484
85 - 89	5	65,626	13,125	5	84,813	16,963
90 - 94				2	22,157	11,079
95 - 99						
100 & Over						
TOTAL	41	\$ 732,193	\$ 17,858	149	\$ 2,615,226	\$ 17,552

Retirees and Beneficiaries Age Distribution Teachers

BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
Under 20						
20 - 24	1	\$ 8,961	\$ 8,961	2	\$ 18,533	\$ 9,267
25 - 29				1	9,572	9,572
30 - 34	1	4,741	4,741	2	21,217	10,609
35 - 39	2	24,285	12,143	2	14,411	7,206
40 - 44	4	47,057	11,764	2	4,846	2,423
45 - 49	7	52,467	7,495	2	22,002	11,001
50 - 54	7	67,177	9,597	5	41,824	8,365
55 - 59	10	84,338	8,434	16	289,266	18,079
60 - 64	20	333,482	16,674	29	459,893	15,858
65 - 69	36	668,016	18,556	70	1,461,555	20,879
70 - 74	44	697,511	15,853	76	1,742,222	22,924
75 - 79	34	577,989	17,000	85	2,052,379	24,146
80 - 84	27	423,289	15,677	54	1,272,943	23,573
85 - 89	14	251,744	17,982	35	720,983	20,600
90 - 94	10	186,051	18,605	16	225,326	14,083
95 - 99				9	98,236	10,915
100 & Over						
TOTAL	217	\$3,427,108	\$15,793	406	\$8,455,208	\$20,826

Retirees and Beneficiaries Age Distribution Police

SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
35 - 39				1	\$ 3,390	\$ 3,390
40 - 44				8	74,731	9,341
45 - 49	194	\$ 9,789,684	\$ 50,462	37	983,120	26,571
50 - 54	371	20,032,090	53,995	76	1,867,063	24,567
55 - 59	463	23,253,669	50,224	99	2,454,652	24,794
60 - 64	446	19,961,581	44,757	92	1,955,113	21,251
65 - 69	384	14,347,533	37,363	73	1,371,830	18,792
70 - 74	290	9,741,558	33,592	55	684,599	12,447
75 - 79	160	4,945,678	30,910	25	328,896	13,156
80 - 84	85	2,231,852	26,257	14	222,156	15,868
85 - 89	38	1,125,192	29,610	4	52,047	13,012
90 - 94	8	206,734	25,842	3	54,511	18,170
95 - 99	2	73,523	36,762			
100 & Over						
TOTAL	2,441	\$ 105,709,094	\$ 43,306	487	\$ 10,052,108	\$ 20,641

DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
25 - 29				1	\$ 9,349	\$ 9,349
30 - 34				1	40,235	40,235
35 - 39	6	\$ 217,036	\$ 36,173	2	61,242	30,621
40 - 44	23	934,326	40,623	5	196,856	39,371
45 - 49	31	1,217,592	39,277	4	155,253	38,813
50 - 54	44	1,532,741	34,835	8	290,630	36,329
55 - 59	43	1,424,949	33,138	10	287,145	28,715
60 - 64	46	1,492,695	32,450	7	174,706	24,958
65 - 69	48	1,539,572	32,074	10	278,576	27,858
70 - 74	44	1,291,959	29,363	7	137,313	19,616
75 - 79	15	439,548	29,303			
80 - 84	10	283,885	28,389	1	12,357	12,357
85 - 89	3	60,246	20,082			
95 - 99	2	24,381	12,191			
100 & Over						
TOTAL	315	\$ 10,458,930	\$ 33,203	56	\$ 1,643,662	\$ 29,351

Retirees and Beneficiaries Age Distribution Police

BENEFICIARIES OF DECEASED MEMBERS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
Under 20						
20 - 24	2	\$ 25,681	\$ 12,841			
25 - 29	2	22,135	11,068			
30 - 34				1	\$ 11,314	\$ 11,314
35 - 39				1	17,248	17,248
40 - 44				4	54,335	13,584
45 - 49	1	3,991	3,991	8	157,446	19,681
50 - 54	4	57,809	14,452	13	351,140	27,011
55 - 59	4	46,534	11,634	29	624,540	21,536
60 - 64	7	114,819	16,403	46	1,055,039	22,936
65 - 69	5	70,290	14,058	77	1,379,446	17,915
70 - 74				65	1,264,187	19,449
75 - 79	5	49,757	9,951	78	1,053,297	13,504
80 - 84	3	21,970	7,323	57	800,642	14,046
85 - 89	1	15,348	15,348	36	425,553	11,821
90 - 94	3	14,832	4,944	24	307,621	12,818
95 - 99				7	79,896	11,414
100 & Over	1	12,498	12,498	3	29,186	9,729
TOTAL	38	\$ 455,664	\$ 11,991	449	\$ 7,610,890	\$ 16,951

Retirees and Beneficiaries Age Distribution

Fire

SERVICE RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
40 - 44				1	\$ 3,605	\$ 3,605
45 - 49	40	\$ 2,002,695	\$50,067	11	220,241	20,022
50 - 54	131	7,056,840	53,869	21	380,600	18,124
55 - 59	187	11,314,340	60,504	24	380,697	15,862
60 - 64	265	13,421,970	50,649	33	486,962	14,756
65 - 69	190	8,917,059	46,932	12	175,007	14,584
70 - 74	122	4,763,964	39,049	10	174,569	17,457
75 - 79	75	2,863,176	38,176	2	38,474	19,237
80 - 84	47	1,355,692	28,845	1	9,347	9,347
85 - 89	21	529,713	25,224			
90 - 94	9	258,886	28,765			
95 - 99						
100 & Over						
TOTAL	1,087	\$52,484,335	\$48,284	115	\$1,869,502	\$16,257

DISABILITY RETIREMENTS

Age Group	Males			Females		
	Number	Amount	Average	Number	Amount	Average
30 - 34	1	\$ 19,303	\$ 19,303			
35 - 39	2	71,400	35,700			
40 - 44	5	137,040	27,408			
45 - 49	6	229,535	38,256			
50 - 54	15	600,573	40,038	4	\$ 128,753	\$ 32,188
55 - 59	15	522,612	34,841	1	40,899	40,899
60 - 64	16	527,987	32,999	1	26,454	26,454
65 - 69	16	496,747	31,047			
70 - 74	13	348,538	26,811			
75 - 79	19	496,997	26,158			
80 - 84	10	278,651	27,865			
85 - 89	4	121,310	30,328			
90 - 94						
95 - 99	1	18,993	18,993			
100 & Over						
TOTAL	123	\$3,869,686	\$31,461	6	\$196,106	\$32,684

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			
20 - 24						
25 - 29	1	5,913	5,913			
30 - 34				1	\$ 5,913	\$ 5,913
35 - 39						
40 - 44						
45 - 49	3	35,211	11,737	1	44,756	44,756
50 - 54	1	3,970	3,970	6	91,544	15,257
55 - 59	2	6,780	3,390	22	421,038	19,138
60 - 64	1	2,783	2,783	31	615,806	19,865
65 - 69				37	724,643	19,585
70 - 74				46	1,009,764	21,951
75 - 79	1	15,853	15,853	41	631,316	15,398
80 - 84				40	784,238	19,606
85 - 89				44	710,206	16,141
90 - 94	2	38,479	19,240	20	311,380	15,569
95 - 99				7	90,681	12,954
100 & Over						
TOTAL	12	\$114,902	\$9,575	296	\$5,441,285	\$18,383

Active Members by Valuation Division

Valuation Group	Active Members	Valuation Payroll	Average		
			Age	Service*	Pay
Employees:					
Male	9,556	\$ 515,500,964	48.8	11.4	\$53,945
Female	14,922	664,017,334	49.4	10.9	44,499
Total	24,478	1,179,518,298	49.2	11.1	48,187
Teachers:					
Male	3,806	246,370,876	46.0	14.2	64,732
Female	13,811	827,076,122	46.1	13.3	59,885
Total	17,617	1,073,446,998	46.1	13.5	60,932
Police:					
Male	3,604	257,142,577	39.1	11.2	71,349
Female	547	33,861,127	38.9	9.3	61,903
Total	4,151	291,003,704	39.1	11.0	70,104
Fire:					
Male	1,600	121,064,749	41.3	13.2	75,665
Female	40	2,577,783	41.3	12.2	64,445
Total	1,640	123,642,532	41.3	13.2	75,392
Total:					
Male	18,566	1,140,079,166	45.7	12.1	61,407
Female	29,320	1,527,532,366	47.6	12.0	52,099
Grand Total	47,886	\$2,667,611,532	46.9	12.1	\$55,708

* 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	9,813	\$ 536,482,267
Political Subdivisions	14,665	643,036,031
Subtotal	24,478	1,179,518,298
Teachers:	17,617	1,073,446,998
Police:		
State	1,039	76,213,301
Political Subdivisions	3,112	214,790,403
Subtotal	4,151	291,003,704
Fire:		
State	65	3,879,292
Political Subdivisions	1,575	\$119,763,240
Subtotal	1,640	123,642,532
Total	47,886	\$ 2,667,611,532

Active Members Age and Service Distribution

Employees June 30, 2017

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	23							23	\$ 520,174
20-24	600	1						601	17,323,192
25-29	1,155	145	4					1,304	46,004,356
30-34	1,098	443	221	4				1,766	73,388,783
35-39	936	429	436	158				1,959	91,896,763
40-44	855	409	422	325	71	5		2,087	102,182,437
45-49	1,026	597	579	495	280	141	10	3,128	156,747,362
50-54	997	738	762	598	376	352	184	4,007	204,377,427
55-59	925	779	921	747	415	356	360	4,503	227,718,528
60-64	564	529	754	641	391	316	329	3,524	178,479,387
65-69	165	209	295	249	140	113	94	1,265	66,149,213
70+	37	46	67	63	33	28	37	311	14,730,676
TOTAL	8,381	4,325	4,461	3,280	1,706	1,311	1,014	24,478	\$ 1,179,518,298

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: 11.1 years
Annual Pay: \$48,187

Active Members Age and Service Distribution

Teachers June 30, 2017

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	202							202	7,436,829
25-29	1,139	176						1,315	54,789,335
30-34	687	987	205					1,879	91,086,639
35-39	475	620	1,076	187	1			2,359	134,166,347
40-44	376	391	614	790	95			2,266	141,302,165
45-49	397	419	478	595	477	56		2,422	154,996,755
50-54	248	325	477	442	312	328	99	2,231	145,963,632
55-59	155	213	447	486	323	269	463	2,356	159,146,336
60-64	75	117	273	403	302	212	483	1,865	132,601,434
65-69	19	44	75	145	114	75	165	637	45,616,353
70+	1	8	13	10	17	4	32	85	6,341,173
TOTAL	3,774	3,300	3,658	3,058	1,641	944	1,242	17,617	\$ 1,073,446,998

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

Age: 46.1 years
Service: 13.5 years
Annual Pay: \$60,932

Active Members Age and Service Distribution

Police June 30, 2017

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	\$ 65,268
20-24	223							223	9,145,504
25-29	542	108						650	35,192,452
30-34	241	317	119					677	43,752,159
35-39	106	139	298	107	3			653	48,871,913
40-44	57	71	157	268	91	6		650	52,378,274
45-49	56	50	99	194	182	35	3	619	49,503,759
50-54	37	40	50	96	61	64	18	366	28,781,960
55-59	16	15	34	46	32	28	22	193	15,014,652
60-64	4	11	20	24	10	13	6	88	6,363,954
65-69	5	2	6	5	4	3	3	28	1,793,826
70+				1		1		2	139,983
TOTAL	1,289	753	783	741	383	150	52	4,151	\$ 291,003,704

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

Age: 39.1 years
Service: 11.0 years
Annual Pay: \$70,104

Active Members Age and Service Distribution

Fire June 30, 2017

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	64							64	3,058,899
25-29	126	39						165	9,430,894
30-34	80	103	62					245	15,799,836
35-39	36	48	106	46	1			237	17,507,755
40-44	15	24	72	102	24	1		238	18,592,886
45-49	11	26	76	104	72	32		321	26,401,856
50-54	8	12	30	57	36	55	27	225	19,672,217
55-59	4	6	18	21	14	23	26	112	10,199,589
60-64	2	1	2	11	1	3	6	26	2,345,119
65-69		4			1		2	7	633,481
70+									
TOTAL	346	263	366	341	149	114	61	1,640	\$ 123,642,532

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

Age: 41.3 years
 Service: 13.2 years
 Annual Pay: \$75,392

Active Members Age and Service Distribution

**Total
June 30, 2017**

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	25							25	\$ 585,442
20-24	1,089	1						1,090	36,964,424
25-29	2,962	468	4					3,434	145,417,037
30-34	2,106	1,850	607	4				4,567	224,027,417
35-39	1,553	1,236	1,916	498	5			5,208	292,442,778
40-44	1,303	895	1,265	1,485	281	12		5,241	314,455,762
45-49	1,490	1,092	1,232	1,388	1,011	264	13	6,490	387,649,732
50-54	1,290	1,115	1,319	1,193	785	799	328	6,829	398,795,236
55-59	1,100	1,013	1,420	1,300	784	676	871	7,164	412,079,105
60-64	645	658	1,049	1,079	704	544	824	5,503	319,789,894
65-69	189	259	376	399	259	191	264	1,937	114,192,873
70+	38	54	80	74	50	33	69	398	21,211,832
TOTAL	13,790	8,641	9,268	7,420	3,879	2,519	2,369	47,886	\$ 2,667,611,532

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: \$55,708

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
2017	47,886	(0.2%)	2,667,611,532	2.5%	55,708	2.9%	46.9	12.1

* Average annual increase.

By Valuation Group (Valuation Payroll in Thousands)

	Fiscal Year	Active Members#	Valuation Payroll	Average Compensation	% Inc.*
Employees	2017	24,478	\$1,179,518	\$48,187	3.97 %
Teachers		17,617	1,073,447	60,932	1.69 %
Police		4,151	291,004	70,104	3.41 %
Fire		1,640	123,643	75,392	3.23 %
Total		47,886	\$2,667,612	\$55,708	2.94 %

	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 %

Excludes temporary inactive members.

* Average annual increase.

Summary of Membership Data by Category

	June 30	
	2017	2016
Active Members		
Number	47,886	48,069
Average age (years)	46.9	46.9
Average service* (years)	12.1	12.1
Average salary	\$55,708	\$54,118
Total payroll supplied, annualized	\$ 2,667,611,532	\$ 2,601,403,606
Vested Inactive Members		
Number	2,281	1,785
Average age (years)	52	52
Non-Vested Inactive Members		
Number	10,477	9,528
Service Retirees		
Number	31,186	28,403
Average age (years)	70.0	70.0
Total annual benefits	\$ 639,679,378	\$ 608,332,888
Average annual benefit	\$ 20,512	\$ 21,418
Disability Retirees		
Number	1,600	1,600
Average age (years)	64.0	63.7
Total annual benefits	\$ 31,739,977	\$ 31,124,304
Average annual benefit	\$ 19,837	\$ 19,453
Beneficiaries		
Number	2,908	2,773
Average age (years)	73.9	73.9
Total annual benefits	\$ 41,692,950	\$ 38,818,283
Average annual benefit	\$ 14,337	\$ 13,999
Total Covered Lives	96,338	92,158

* 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, 2017

Employees

Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Total annual benefit	\$ 4,750,023	\$ 9,680,846	\$ 31,700,213	\$ 31,246,988	\$ 40,120,032	\$ 34,169,246	\$ 84,709,268	\$ 236,376,616
Average annual benefit	\$ 3,758	\$ 5,442	\$ 7,415	\$ 11,030	\$ 14,364	\$ 19,637	\$ 29,321	\$ 13,451
Average monthly benefit	\$ 313	\$ 453	\$ 618	\$ 919	\$ 1,197	\$ 1,636	\$ 2,443	\$ 1,121
Average final compensation	\$ 43,797	\$ 42,845	\$ 41,884	\$ 47,851	\$ 50,369	\$ 56,958	\$ 66,591	\$ 50,123
Number of retired members	1,264 *	1,779	4,275	2,833	2,793	1,740	2,889	17,573 **

* Includes 310 members who did not have service reported.

** Includes 6,504 members who did not have AFC reported.

Teachers

Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Total annual benefit	\$ 1,766,889	\$ 2,473,324	\$ 13,691,432	\$ 21,297,604	\$ 43,909,985	\$ 50,069,459	\$ 143,620,832	\$ 276,829,525
Average annual benefit	\$ 6,051	\$ 6,870	\$ 8,799	\$ 13,679	\$ 18,018	\$ 23,127	\$ 33,176	\$ 21,804
Average monthly benefit	\$ 504	\$ 573	\$ 733	\$ 1,140	\$ 1,502	\$ 1,927	\$ 2,765	\$ 1,817
Average final compensation	\$ 52,263	\$ 57,449	\$ 50,750	\$ 59,866	\$ 63,691	\$ 68,520	\$ 73,099	\$ 65,211
Number of retired members	292 *	360	1,556	1,557	2,437	2,165	4,329	12,696 **

* Includes 135 members who did not have service reported.

** Includes 4,808 members who did not have AFC reported.

Police

Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Total annual benefit	\$ 4,744,685	\$ 3,380,863	\$ 8,509,661	\$ 9,472,789	\$ 56,399,873	\$ 36,132,728	\$ 17,289,749	\$ 135,930,348
Average annual benefit	\$ 11,744	\$ 16,412	\$ 19,473	\$ 26,759	\$ 37,625	\$ 55,333	\$ 74,205	\$ 35,903
Average monthly benefit	\$ 979	\$ 1,368	\$ 1,623	\$ 2,230	\$ 3,135	\$ 4,611	\$ 6,184	\$ 2,992
Average final compensation	\$ 52,922	\$ 56,688	\$ 55,024	\$ 66,556	\$ 81,206	\$ 95,886	\$ 108,399	\$ 79,145
Number of retired members	404 *	206	437	354	1,499	653	233	3,786 **

* Includes 263 members who did not have service reported.

** Includes 1,801 members who did not have AFC reported.

Fire

Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Total annual benefit	\$ 2,076,462	\$ 523,241	\$ 2,107,865	\$ 3,388,234	\$ 20,909,928	\$ 20,293,942	\$ 14,676,144	\$ 63,975,816
Average annual benefit	\$ 13,843	\$ 16,879	\$ 21,957	\$ 26,265	\$ 33,456	\$ 49,985	\$ 72,654	\$ 39,033
Average monthly benefit	\$ 1,154	\$ 1,407	\$ 1,830	\$ 2,189	\$ 2,788	\$ 4,165	\$ 6,055	\$ 3,253
Average final compensation	\$ 55,226	\$ 59,323	\$ 61,155	\$ 69,692	\$ 79,089	\$ 91,311	\$ 101,821	\$ 85,145
Number of retired members	150 *	31	96	129	625	406	202	1,639 **

* Includes 131 members who did not have service reported.

** Includes 931 members who did not have AFC reported.

Other Schedules of Interest

Schedule of Retired and Vested Members by Type of Benefit

Employees

June 30, 2017																			
		Type of Retirement**							Option Selected #										
Amount of Monthly Benefit	Number of Retirees*								No. Option										Other&
		1	2	3	4	5	6	7		1	2	3	4	5	6	7	8	9	
\$1 - \$500	5,314	4,222	48	2	13	-	555	474	3,030	135	339	127	884	301	13	11	-	-	474
501 - 1,000	5,373	4,075	255	114	10	2	445	472	2,964	103	365	119	969	359	15	7	-	-	472
1,001 - 1,500	3,197	2,523	86	233	13	4	169	169	1,645	73	276	100	655	270	6	3	-	-	169
1,501 - 2,000	1,853	1,558	25	95	6	2	109	58	919	34	175	74	428	156	6	3	-	-	58
2,001 - 2,500	1,112	992	6	25	-	2	69	18	474	12	132	50	312	108	2	4	-	-	18
2,501 - 3,000	712	650	6	6	1	1	41	7	282	16	97	35	189	84	1	1	-	-	7
3,001 - 3,500	466	436	-	4	-	-	22	4	181	6	80	23	124	47	1	-	-	-	4
3,501 - 4,000	319	300	1	1	-	-	15	2	111	6	54	19	89	37	1	-	-	-	2
Over 4,000	434	417	1	2	2	-	9	3	137	5	69	37	118	63	1	1	-	-	3
Totals	18,780	15,173	428	482	45	11	1,434	1,207	9,743	390	1,587	584	3,768	1,425	46	30	-	-	1,207

Teachers

June 30, 2017																			
		Type of Retirement**							Option Selected #										
Amount of Monthly Benefit	Number of Retirees*								No. Option										Other&
		1	2	3	4	5	6	7		1	2	3	4	5	6	7	8	9	
\$1 - \$500	1,554	1,213	1	-	-	-	78	262	665	31	105	41	343	97	5	5	-	-	262
501 - 1,000	2,170	1,616	37	-	5	-	134	378	1,114	54	122	34	372	88	6	2	-	-	378
1,001 - 1,500	1,936	1,600	74	3	5	-	98	156	936	47	159	56	447	127	4	4	-	-	156
1,501 - 2,000	1,955	1,738	28	6	6	-	94	83	887	51	156	50	522	196	2	8	-	-	83
2,001 - 2,500	1,955	1,825	18	8	-	1	72	31	859	36	158	71	565	226	3	6	-	-	31
2,501 - 3,000	1,538	1,454	7	3	-	-	53	21	644	39	137	57	442	193	1	4	-	-	21
3,001 - 3,500	1,243	1,190	3	2	-	-	42	6	521	23	116	49	393	127	2	6	-	-	6
3,501 - 4,000	701	679	-	-	1	-	19	2	297	18	80	25	186	92	-	1	-	-	2
Over 4,000	585	568	-	-	-	-	15	2	269	7	70	21	145	71	-	-	-	-	2
Totals	13,637	11,883	168	22	17	1	605	941	6,192	306	1,103	404	3,415	1,217	23	36	-	-	941

See Page 110 for footnotes.

Other Schedules of Interest

Schedule of Retired and Vested Members by Type of Benefit

Police

		June 30, 2017																			
		Type of Retirement**							Option Selected #												
Amount of Monthly Benefit	Number of Retirants*								No.												
		1	2	3	4	5	6	7	Option	1	2	3	4	5	6	7	8	9	Other&		
\$1 - \$500	222	179	-	-	-	2	39	2	148	1		9	15	22	25	-	-	-	-	2	
501 - 1,000	360	188	12	1	-	-	147	12	263	5		16	10	20	30	2	2	-	-	12	
1,001 - 1,500	408	188	23	6	2	1	141	47	266	10		16	15	16	38	-	-	-	-	47	
1,501 - 2,000	349	210	20	32	2	1	61	23	199	11		8	27	17	64	-	-	-	-	23	
2,001 - 2,500	388	286	8	56	1	1	23	13	189	18		12	51	14	89	-	2	-	-	13	
2,501 - 3,000	417	286	1	89	-	-	31	10	177	22		10	68	15	115	-	-	-	-	10	
3,001 - 3,500	385	325	-	44	2	3	9	2	133	15		7	96	9	123	-	-	-	-	2	
3,501 - 4,000	316	279	1	25	1	-	8	2	104	8		2	70	8	122	-	-	-	-	2	
Over 4,000	1,056	987	1	52	1	1	10	4	261	17		11	311	15	435	2	-	-	-	4	
Totals	3,901	2,928	66	305	9	9	469	115	1,740	107		91	663	136	1,041	4	4	-	-	115	

Fire

		June 30, 2017																			
		Type of Retirement**							Option Selected #												
Amount of Monthly Benefit	Number of Retirants*								No.												
		1	2	3	4	5	6	7	Option	1	2	3	4	5	6	7	8	9	Other&		
\$1 - \$500	47	26	-	-	-	2	19	-	40	-		2	-	1	4	-	-	-	-	-	
501 - 1,000	107	39	1	-	-	-	66	1	102	-		1	-	1	2	-	-	-	-	1	
1,001 - 1,500	171	66	8	5	1	5	78	8	129	6		7	7	8	6	-	-	-	-	8	
1,501 - 2,000	160	68	9	11	-	1	65	6	115	8		5	8	7	11	-	-	-	-	6	
2,001 - 2,500	171	104	7	20	1	3	35	1	95	10		8	20	7	30	-	-	-	-	1	
2,501 - 3,000	163	126	1	24	-	-	11	1	60	8		4	29	9	52	-	-	-	-	1	
3,001 - 3,500	164	138	1	18	-	2	5	-	48	7		3	41	2	63	-	-	-	-	-	
3,501 - 4,000	141	128	-	9	-	1	2	1	44	5		2	29	1	59	-	-	-	-	1	
Over 4,000	533	507	-	15	1	-	10	-	142	11		2	139	5	232	1	1	-	-	-	
Totals	1,657	1,202	27	102	3	14	291	18	775	55		34	273	41	459	1	1	-	-	18	

See Page 110 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, 2017

Medical Benefits

State Employees								
Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Average annual benefit	\$ 4,632	\$ 4,894	\$ 4,403	\$ 4,478	\$ 3,986	\$ 4,338	\$ 4,341	\$ 4,285
Average monthly benefit	\$ 386	\$ 408	\$ 367	\$ 373	\$ 332	\$ 361	\$ 362	\$ 357
Annual Benefits	\$356,681	\$313,223	\$303,778	\$179,132	\$1,813,452	\$1,353,420	\$3,003,742	\$7,323,428
Number of retired members	77	64	69	40	455	312	692	1,709

* Includes 6 members who did not have service reported.

Political Subdivision Employees								
Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Average annual benefit	\$ 2,953	\$ 2,968	\$ 2,789	\$ 3,743	\$ 4,195	\$ 4,194	\$ 4,810	\$ 4,317
Average monthly benefit	\$ 246	\$ 247	\$ 232	\$ 312	\$ 350	\$ 350	\$ 401	\$ 360
Annual Benefits	\$44,296	\$26,715	\$30,676	\$18,717	\$2,403,847	\$1,170,245	\$1,529,537	\$5,224,033
Number of retired members	15	9	11	5	573	279	318	1,210

* Includes 6 members who did not have service reported.

Teachers								
Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Average annual benefit	\$ 3,365	\$2,842	\$ 3,969	\$0	\$ 4,414	\$ 4,530	\$ 5,108	\$ 4,815
Average monthly benefit	\$ 280	\$ 237	\$ 331	\$ 0	\$ 368	\$ 377	\$ 426	\$ 401
Annual Benefits	\$63,930	\$11,368	\$15,875	\$0	\$4,290,419	\$4,181,008	\$12,034,304	\$20,596,904
Number of retired members	19	4	4	0	972	923	2,356	4,278

* Includes 14 members who did not have service reported.

Police and Fire								
Service	0 - 4 yrs.*	5 - 9 yrs.	10 - 14 yrs.	15 - 19 yrs.	20 - 24 yrs.	25 - 29 yrs.	30 or more yrs.	Total
Average annual benefit	\$ 4,549	\$ 4,620	\$ 5,193	\$ 4,990	\$ 5,862	\$ 6,364	\$ 6,261	\$ 5,873
Average monthly benefit	\$ 379	\$ 385	\$ 433	\$ 416	\$ 489	\$ 530	\$ 522	\$ 489
Annual Benefits	\$291,141	\$351,087	\$913,896	\$878,184	\$7,556,193	\$4,391,296	\$2,109,795	\$16,491,592
Number of retired members	64	76	176	176	1,289	690	337	2,808

* Includes 22 members who did not have service reported.

Number counts include 40 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, 2017					
Monthly Benefit	No. of Retirees	1 Person		2 Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,577	59	1,476	0	42
501-1,000	132	5	71	26	30
1,001-1,500	0	0	0	0	0
1,501-2,000	0	0	0	0	0
Over 2,000	0	0	0	0	0
Total	1,709	64	1,547	26	72

Political Subdivision Employees

June 30, 2017					
Monthly Benefit	No. of Retirees	1 Person		2 Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,132	40	1,084	0	8
501-1,000	77	3	41	8	25
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	1,210	43	1,125	8	34

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

Teachers

June 30, 2017					
Monthly Benefit	No. of Retirees	1-Person		2-Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	3,736	83	3,605	0	48
501-1,000	519	20	165	30	304
1,001-1,500	18	1	10	2	5
1,501-2,000	5	2	1	2	0
Over 2,000	0	0	0	0	0
Total	4,278	106	3,781	34	357

Police and Fire

June 30, 2017					
Monthly Benefit	No. of Retirees	1-Person		2-Person	
		Pre-65	Post-65	Pre-65	Post-65
\$1-\$500	1,786	451	1,303	18	14
501-1,000	998	48	254	676	20
1,001-1,500	18	3	2	9	4
1,501-2,000	6	0	0	6	0
Over 2,000	0	0	0	0	0
Total	2,808	502	1,559	709	38

Other Schedules of Interest

Historical Membership Data - Retiree

EMPLOYEES (aggregate compensation and annual allowance dollars in thousands)

RETIRED MEMBERSHIP DATA

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*		
2017	1,950	\$ 22,224	519	\$ 8,977	17,573	\$ 236,377	5.94%	\$ 13,451
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

TEACHERS (aggregate compensation and annual allowance dollars in thousands)

RETIRED MEMBERSHIP DATA

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*		
2017	1,523	\$ 21,713	237	\$ 8,847	12,696	\$ 276,830	4.87%	\$ 21,804
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

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

RETIRED MEMBERSHIP DATA

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*		
2017	233	\$ 7,985	76	\$ 1,745	3,786	\$ 135,930	4.81%	\$ 35,903
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

FIREFIGHTERS (aggregate compensation and annual allowance dollars in thousands)

RETIRED MEMBERSHIP DATA

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*		
2017	88	\$ 3,697	44	\$ 1,213	1,639	\$ 63,976	4.04%	\$ 39,033
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.

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