January 1, 2014

Actuarial Valuation Report

Hampshire County Retirement Board

Lawrence B. Stone

stoneconsulting, inc

5 West Mill Street, Suite 4
Medfield, Massachusetts 02052
T: 508.359.9600 • F: 508.359.0190
Lstone@stoneconsult.com

stoneconsulting,inc

November 4, 2014

Hampshire County Retirement Board
99 Industrial Drive
Suite 2
Northampton, MA 01060

Dear Hampshire County Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2014 actuarial valuation of the Hampshire County Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices and meets the parameters set by the Governmental Accounting Standards Board Statement (GASB) No. 27. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the Hampshire County Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

We anticipate over time the contribution level to decrease as a percentage of payroll. The contribution rate is determined by adding the net normal cost plus an amortization of the unfunded actuarial accrued liability along with the net 3(8)(c) amount. The normal cost is expected to remain at a level percentage of payroll. The length of the funding schedule contained in this actuarial valuation report is nineteen years (fully funded in Fiscal 2034). The Fresh Start amortization is set to be 7% higher than the previous year for 3 years with regular 4% amortization increases thereafter.

The contribution amount for Fiscal Year 2016 is $18,970,735 which is $587,957 more than the anticipated contribution amount for Fiscal 2016 from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Hampshire County Retirement Board conducted their previous actuarial valuation effective January 1, 2012.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

I, Lawrence Stone, am a consultant for Stone Consulting, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

STONE CONSULTING, INC.
Actuaries for the Plan

____

Lawrence B. Stone
Member, American Academy of Actuaries

TABLE OF CONTENTS

PAGE

Introduction

This report presents the results of the actuarial valuation of the Hampshire County Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2014 for the purpose of determining the contribution requirements for Fiscal Year 2016 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2013
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2014);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, mortality, etc.)

January 1, 2014 Valuation Summary

<table>
<tr><th></th><th>January 1, 2014</th><th>January 1, 2012</th><th>Change</th></tr>
<tr><td>Contribution Fiscal 2016</td><td>$18,970,735</td><td>$18,382,778</td><td>$587,957</td></tr>
<tr><td>Funding Schedule Length</td><td>19 years</td><td>19 years</td><td>0 years</td></tr>
<tr><td>Funding Ratio</td><td>57% (59% MVA Basis)</td><td>56%</td><td>1%</td></tr>
<tr><td>Interest Rate Assumption</td><td>7.875%</td><td>7.875%</td><td>0.00%</td></tr>
<tr><td>Salary Increase Rate Assumption</td><td>Select and ultimate:
<table>
<tr><th>Svc</th><th>Group 1</th><th>Group 4</th></tr>
<tr><td>0</td><td>6.75%</td><td>7.50%</td></tr>
<tr><td>1</td><td>6.25%</td><td>7.00%</td></tr>
<tr><td>2</td><td>6.25%</td><td>6.50%</td></tr>
<tr><td>3</td><td>5.75%</td><td>6.00%</td></tr>
<tr><td>4</td><td>5.75%</td><td>5.50%</td></tr>
<tr><td>5</td><td>5.25%</td><td>5.50%</td></tr>
<tr><td>6</td><td>5.25%</td><td>5.00%</td></tr>
<tr><td>7</td><td>4.75%</td><td>5.00%</td></tr>
<tr><td>8</td><td>4.75%</td><td>4.75%</td></tr>
<tr><td>9+</td><td>4.50%</td><td>4.75%</td></tr>
</table></td><td>Same</td><td>0.00%</td></tr>
</table>

- The Fiscal Year 2016 contribution is $587,957 more than the planned 2016 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a five-year asset smoothing method. The significant actuarial asset loss in 2008 has now been fully recognized. Due to the 2008 loss, the rate of return on actuarial value of assets was 7.7% as compared to the 7.875% interest rate assumption. In this approach, asset gains and losses are recognized over a five-year period. The purpose of this approach is to avoid wide swings in asset value from one year to the next.

The System experienced a 13.1% annual return on the market value of assets versus our assumption of a 7.875% return which resulted in a $21.5 million net actuarial gain for the past two years. The System's asset portfolio, effective December 31, 2013 is approximately 77% equities, alternative investments, hedge funds and real estate and 23% fixed income and short-term investments. The interest rate assumption was maintained at 7.875% to reflect anticipated market performance.

- The salary increase assumption is based on the same select and ultimate table as the prior valuation. Total compensation changed by 7.1% over the prior valuation; however average annual compensation (compensation divided by number of active members) changed by 5.9%. This assumption is based on expected future experience.

- The funding level of the Hampshire County Retirement System is 57% compared to 56% for the January 1, 2012 actuarial valuation. Using market value of assets the funding level is 59%.

  The schedule length is nineteen (19) years (which is the same as the remaining schedule from the prior valuation). The maximum period permitted under Section 22F of Chapter 32 of the Massachusetts General Laws is 25 years (2040).

  The Fresh Start amortization is set to be 7% higher than the previous year for 3 years with regular 4% amortization increases thereafter.

- Non-economic assumptions were changed from the January 1, 2012 actuarial valuation. The mortality assumptions are based upon the RP2000 Table (sex-distinct) projected 19 years with Scale BB. The previous assumption used a 17 year projection with Scale AA. The net effect of this change increased the accrued liability by $8.5 million.

- The COLA base was increased from $12,000 to $13,000. This increased the actuarial accrued liability by $2.2 million.

January 1, 2014 Actuarial Valuation Results

	January 1, 2014	January 1, 2012	Percentage Change
Funding			
Contribution for Fiscal 2016	$18,970,735		
Contribution for Fiscal 2016 based on current schedule		$18,382,778	3%
Members *			
▪ Actives			
a. Number	1,899	1,879	1.1%
b. Annual Compensation	$73,422,208	$68,574,890	7.1%
c. Average Annual Compensation	$38,664	$36,495	5.9%
d. Average Attained Age	48.6	48.4	0.4%
e. Average Past Service	11.7	11.6	0.9%
▪ Retired, Disabled and Beneficiaries			
a. Number	1,140	1,111	2.6%
b. Total Benefits*	$21,043,996	18,840,123	11.7%
c. Average Benefits*	$ 18,460	$16,958	8.9%
d. Average Age	72.0	72.0	0.0%
▪ Inactives			
a. Number	883	985	-10.4%
Normal Cost			
a. Total Normal Cost	$9,850,427	$9,186,316	7.2%
b. Less Expected Members' Contributions	6,560,273	6,084,091	7.8%
c. Normal Cost to be funded by the Municipality	$3,290,154	$3,102,225	6.1%
d. Eighteen month adjustment	211,960	199,853	6.1%
e. Administrative Expense Assumption	982,959	891,000	10.3%
f. Adjusted Normal Cost and Expense	$4,485,073	$4,193,078	7.0%

*Excluding State reimbursed COLA

	January 1, 2014	January 1, 2012	Percentage Change
Actuarial Accrued Liability as of January 1, 2014			
a. Active Members	$202,305,138	$179,287,064	12.8%
b. Inactive Members	6,020,065	6,172,713	-2.5%
c. Retired Members and Beneficiaries	208,227,904	182,050,841	14.4%
d. Total	$416,553,107	$367,510,618	13.3%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability	$416,553,107	$367,510,618	13.3%
b. Less Actuarial Value of Assets	235,617,602	204,116,196	15.4%
c. Unfunded Actuarial Accrued Liability	$180,935,505	$163,394,422	10.7%
d. Eighteen month adjustment	$9,525,745	$9,506,530	
e. Adjusted Unfunded Actuarial Accrued Liability	$190,461,250	$172,900,952	

- The data was supplied by the Hampshire County Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Hampshire County Retirement Board, we were able to develop a database sufficient for valuation purposes.

- Payroll changed by 7.1% over the course of the past two years. Average annual compensation changed by 5.9% over the same time period.

- The salary increase assumption includes general wage adjustments, step increases, and promotional increases.

History of Active Participants

Valuation Year	Number	Average Age	Average Past Service	Average Annual Compensation
2014	1,899	48.6	11.7	$38,664
2012	1,879	48.4	11.6	$36,495
2010	1,979	48.0	11.0	$32,769
2007	2,413	46.4	9.8	$26,838

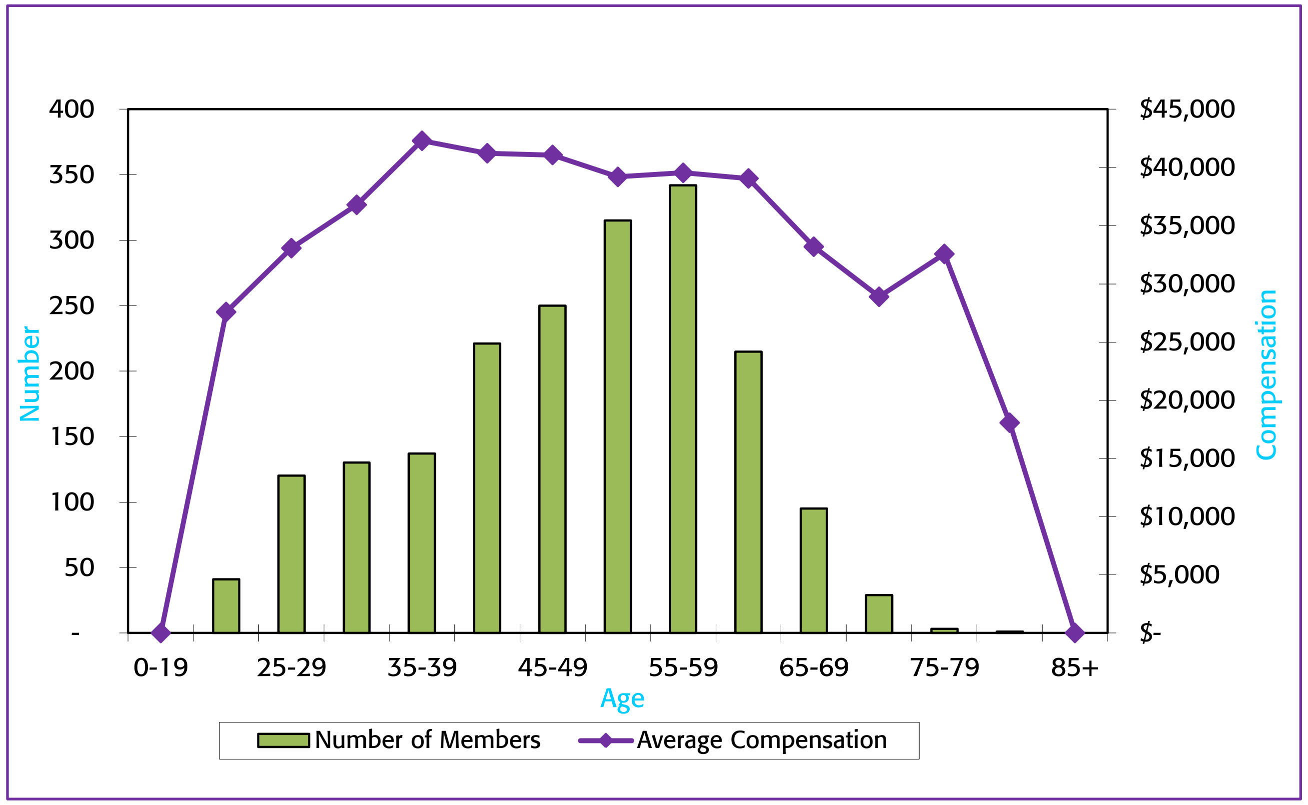
- Employee age has increased by 2.2 years and service has increased by 1.9 years over the past seven years. This is consistent with the overall trend towards an aging of the employee population. Average annual compensation has grown by 44.1% (5.4% annually) over the past seven years. We believe some of that increase is due to lower paid and certain part-time employees being excluded from the system over that time period.

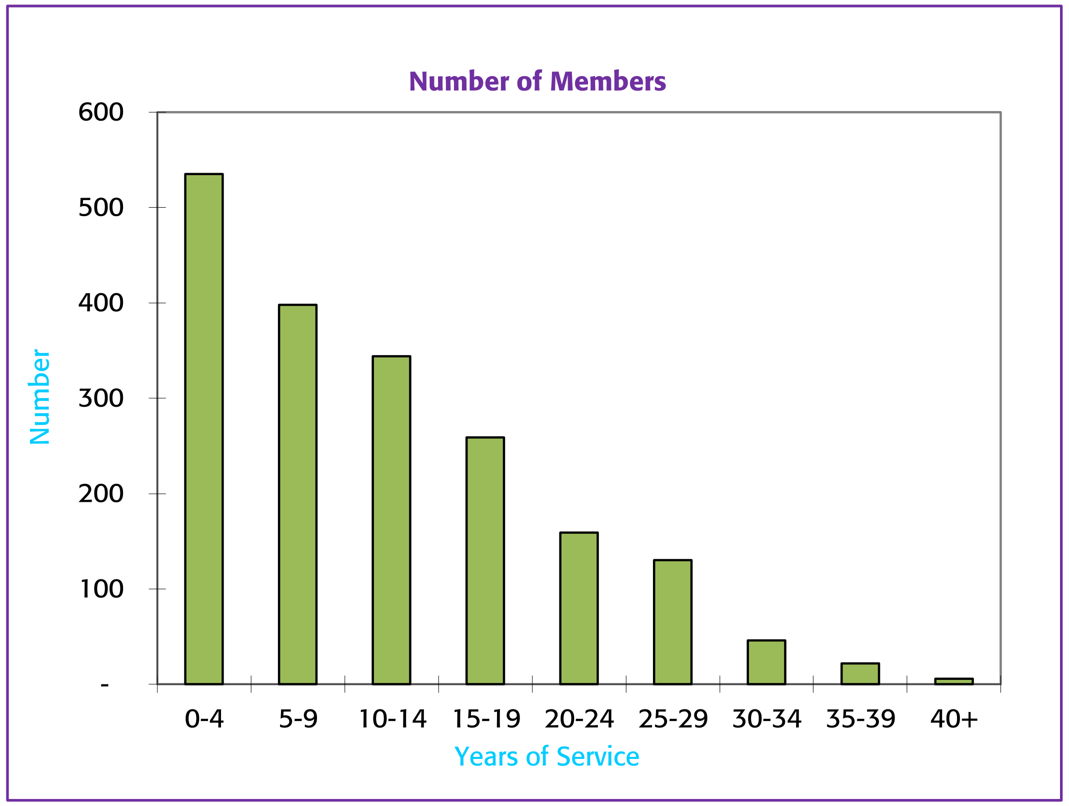
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2014

Active Members

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	41	-	-	-	-	-	-	-	-	41	1,130,672	27,577
25-29	107	13	-	-	-	-	-	-	-	120	3,967,704	33,064
30-34	71	48	11	-	-	-	-	-	-	130	4,782,916	36,792
35-39	52	36	36	12	1	-	-	-	-	137	5,794,011	42,292
40-44	66	59	43	38	14	1	-	-	-	221	9,109,288	41,218
45-49	69	63	44	31	23	20	-	-	-	250	10,268,795	41,075
50-54	54	69	72	56	25	25	13	1	-	315	12,344,062	39,187
55-59	39	53	73	71	41	42	10	12	1	342	13,521,758	39,537
60-64	16	35	40	36	39	24	15	8	2	215	8,396,730	39,055
65-69	14	19	16	11	12	16	5	-	2	95	3,152,782	33,187
70-74	6	2	8	4	3	1	3	1	1	29	837,726	28,887
75-79	-	1	-	-	1	1	-	-	-	3	97,704	32,568
80-84	-	-	1	-	-	-	-	-	-	1	18,062	18,062
85+	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	535	398	344	259	159	130	46	22	6	1,899	$ 73,422,208	$ 38,664





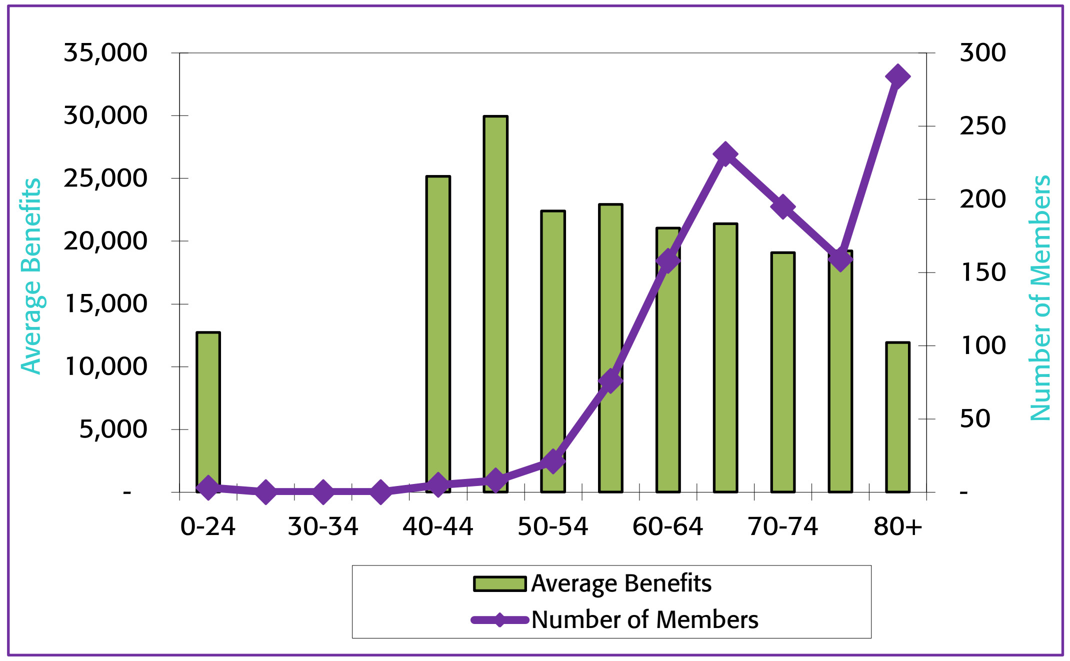
Distribution of Plan Members as of January 1, 2014

Retired Members

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	3	12,732	38,195
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	2	6,965	13,929
45-49	3	17,006	51,017
50-54	10	13,181	131,809
55-59	59	21,148	1,247,748
60-64	142	20,289	2,880,977
65-69	222	21,070	4,677,506
70-74	186	18,685	3,475,463
75-79	153	18,652	2,853,793
80+	279	11,774	3,285,043
TOTAL	**1,059**	**$ 17,616**	**$ 18,655,479**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	3	37,281	111,844
45-49	5	37,722	188,608
50-54	11	30,780	338,585
55-59	17	29,208	496,538
60-64	16	27,642	442,276
65-69	9	29,162	262,456
70-74	9	27,274	245,467
75-79	6	34,153	204,915
80+	5	19,565	97,827
TOTAL	**81**	**$ 29,488**	**$ 2,388,516**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	3	12,732	38,195
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	5	25,155	125,773
45-49	8	29,953	239,625
50-54	21	22,400	470,393
55-59	76	22,951	1,744,286
60-64	158	21,033	3,323,252
65-69	231	21,385	4,939,962
70-74	195	19,082	3,720,929
75-79	159	19,237	3,058,709
80+	284	11,912	3,382,870
TOTAL	**1,140**	**$ 18,460**	**$ 21,043,996**



Benefits shown are net of State reimbursed COLA.

Valuation Methodology

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

Valuation Date	January 1, 2014	% of Payroll*
Gross Normal Cost (GNC)	$9,850,427	13.4%
Employees Contribution	$6,560,273	8.9%
Net Normal Cost (NNC)	$3,290,154	4.5%
Adjusted to Beginning of Fiscal Year 2016	$211,960	
Administrative Expense	$982,959	1.3%
Adjusted Net Normal Cost With Admin. Expense	$4,485,073	

*Payroll paid in 2013 for employees as of January 1, 2014 is $73,422,208. Payroll for new hires in 2013 was annualized.

- The gross normal cost (GNC) is the "price" of benefits accruing in the current year if the assumptions underlying the normal cost were realized.
- An individual normal cost represents that part of the cost of a member's future benefits that are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and withdrawals) are included in this calculation.
- Anticipated employee contributions to be made during the year are subtracted from the GNC to determine employer normal cost, or net normal cost (NNC).
- Administrative expenses are added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

Actuarial Accrued Liability and Funded Status

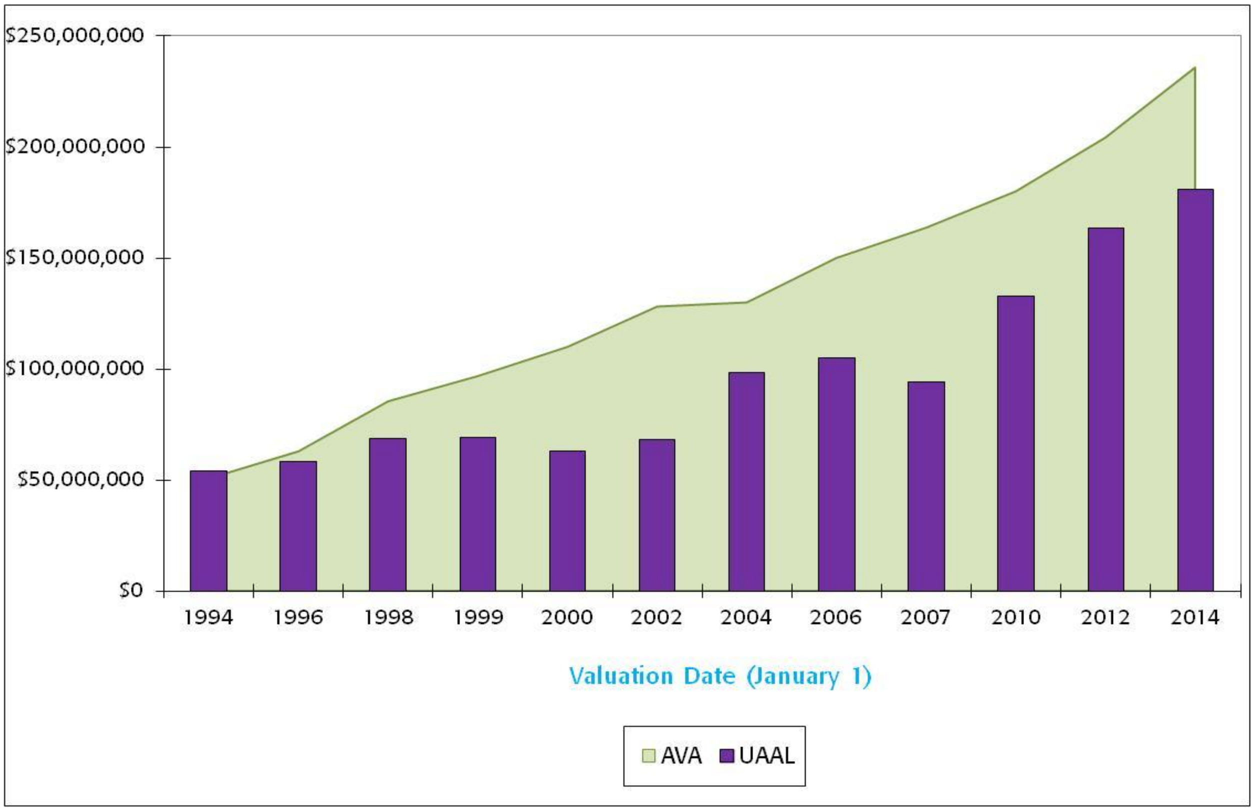
		January 1, 2014	Percentage Change
Active Actuarial Accrued Liability			
Superannuation	$187,851,798		
Death	4,169,730		
Disability	8,656,167		
Withdrawal	1,627,443		
Total		$202,305,138	12.8%
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			
Retirees and Beneficiaries	180,909,974		
Disabled	27,317,930		
Inactive	6,020,065		
Total		214,247,969	13.8%
Total Actuarial Accrued Liability (AAL)		$416,553,107	13.3%
Actuarial Value of Assets (AVA)		235,617,602	15.4%
Unfunded Actuarial Accrued Liability		$180,935,505	10.7%
Funded Ratio (AVA / AAL)			
2014 (7.875% interest rate):		57%	
2012 (7.875% interest rate):		56%	

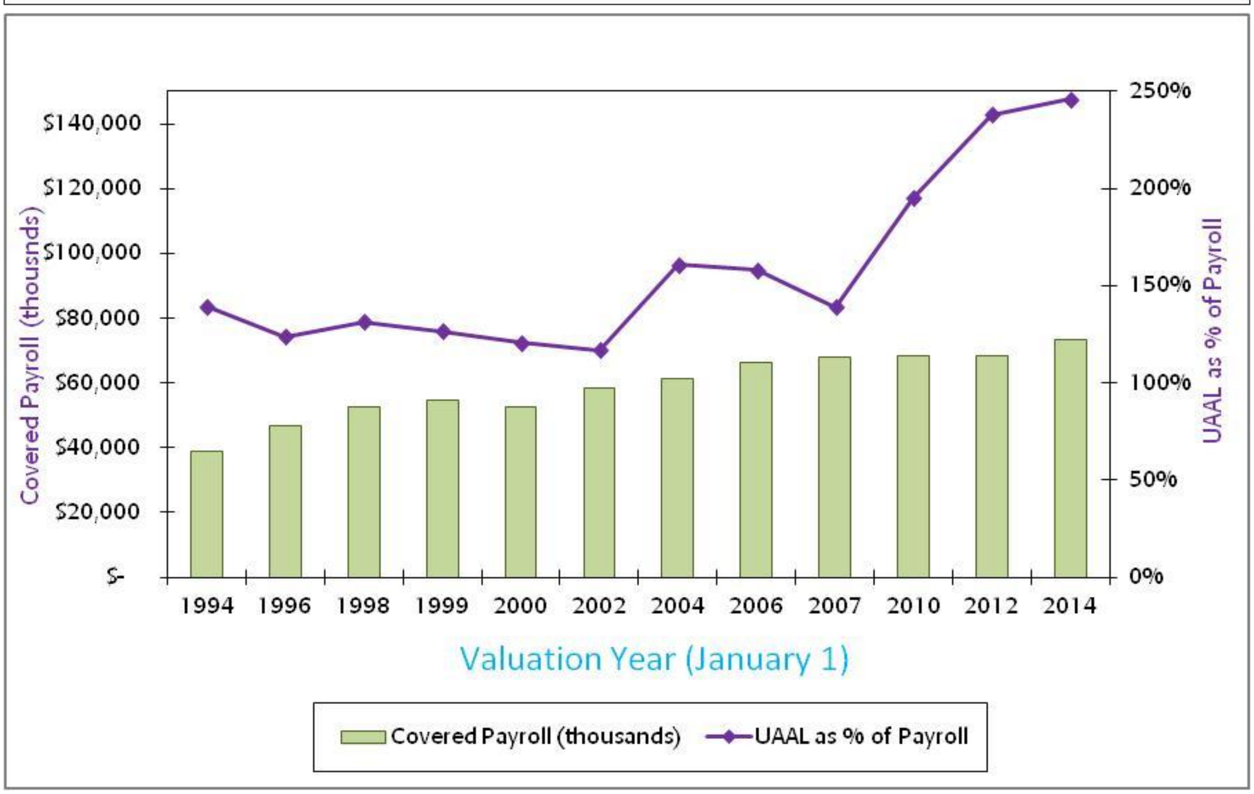
- Actuarial Accrued Liability (AAL) is the "price" of benefits attributable to benefits earned in past years, or in other words, represents today's value of all benefits earned by active and inactive members.

- The total AAL is $416,553,107. This along with an actuarial value of assets of $235,617,602 produces a funded status of 57%. This compares to a funded status of 56% for the 2012 valuation.

- The chart on the following page is a history of the unfunded actuarial accrued liability (UAAL) and the valuation assets (AVA) over the course of the past twelve actuarial valuations.

History of Actuarial Valuation of Assets (AVA) and Unfunded Actuarial Accrued Liability (UAAL)





Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2016	$4,485,073
Net 3(8)(c) payments	967,191
Amortization	13,165,689
Adjustment for semi-annual payments	352,782
Total Appropriation required for Fiscal 2016	$18,970,735

- The funding schedule is composed of the net normal cost, the net 3(8)(c) payments and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made in semiannual payments.

- The 3(8)(c) payments is the net of payments made to or from different Chapter 32 Retirement Systems to reflect benefits paid due to service either with the Hampshire County Retirement System or other Chapter 32 Retirement Systems.

- The contribution amount for Fiscal 2016 is $18,970,735. The funding schedule is presented on page 11. The schedule's length is nineteen (19) years (for the fresh start base) which is the same as the January 1, 2012 valuation remaining schedule's length. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-five years to Fiscal 2040.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (UAAL), other than the UAAL due to past early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach can result in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization is adjusted each year to maintain a constant increase in the total contribution. The Fresh Start amortization is set to be 7% higher than the previous year for 3 years with regular 4% amortization increases thereafter.

HAMPSHIRE COUNTY RETIREMENT SYSTEM

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Fresh Start Unfunded Liability**	Fresh Start Funding Amortization of UAAL*	ERI liability	ERI amortization	Net 3(8)(c) Payments	Schedule Contribution	Adjusted for Semiannual Payments
2015	4,371,284	169,059,092	11,768,221	5,337,888	573,693	633,850	17,347,048	17,675,748
2016	4,485,073	185,536,021	12,591,996	4,925,229	573,693	967,191	18,617,953	18,970,735
2017	4,675,689	186,563,367	13,473,436	4,694,220	573,693	967,191	19,690,008	20,063,104
2018	4,874,405	186,720,763	14,416,577	4,445,018	573,693	967,191	20,831,866	21,226,598
2019	5,081,568	185,873,141	15,069,368	4,176,192	573,693	967,191	21,691,819	22,102,846
2020	5,297,534	184,254,570	15,672,143	3,886,196	573,693	967,191	22,510,561	22,937,101
2021	5,522,679	181,858,294	16,299,028	3,573,363	573,693	967,191	23,362,592	23,805,277
2022	5,757,393	178,597,058	16,950,989	3,235,894	573,693	967,191	24,249,267	24,708,753
2023	6,002,083	174,375,696	17,629,029	2,871,849	573,693	967,191	25,171,995	25,648,966
2024	6,257,171	169,090,467	18,334,190	2,479,136	573,693	967,191	26,132,245	26,627,411
2025	6,523,101	162,628,334	19,067,558	2,055,497	573,693	967,191	27,131,542	27,645,644
2026	6,800,333	154,866,187	19,830,260	1,598,496	573,693	967,191	28,171,477	28,705,283
2027	7,089,347	145,670,006	20,623,471	1,105,506	573,693	967,191	29,253,701	29,808,014
2028	7,390,644	134,893,950	21,448,409	573,693	573,693	967,191	30,379,937	30,955,591
2029	7,704,746	122,379,377	22,306,346	-	-	967,191	30,978,283	31,565,274
2030	8,032,198	107,953,783	23,198,600	-	-	967,191	32,197,988	32,808,091
2031	8,373,566	91,429,654	24,126,544	-	-	967,191	33,467,301	34,101,455
2032	8,729,443	72,603,230	25,091,605	-	-	967,191	34,788,239	35,447,423
2033	9,100,444	51,253,165	26,095,269	-	-	967,191	36,162,905	36,848,136
2034	9,487,213	27,139,080	27,139,080	-	-	967,191	37,593,484	38,305,823
2035	9,890,420	-	-	-	-	967,191	10,857,611	11,063,346

Amortization of Unfunded Liability as of July 1, 2015

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2005	ERI-2002	278,720	0.00%	24	278,720	13
2006	ERI-2003	294,973	0.00%	23	294,973	13
2016	Fresh Start	N/A	4.00%	19	N/A	19

Notes on Amortization of Unfunded Liability

Year is the year the amortization base was established. **Type** is the reason for the creation of the base. Examples are Gain/(Loss) or Fresh Start. **Original Amort. Amount** is the annual amortization amount when the base was established. Percentage Increasing is the percentage that the Original Amortization Amount increases per year. **Original # of Years** is the number of years over which the base is being amortized. **Current Amort. Amount** is the amortization payment amount for this year. **Years Remaining** is the number of years left to amortize the base.

***Fresh Start amortization is set to be 7% higher than the previous year for 3 years with 4% amortization increases thereafter for 16 years**

****Fresh Start unfunded liability is equal to the total unfunded actuarial liability minus the ERI liability**

Assumptions and Methodology Summary

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

Valuation Date	January 1, 2014 Valuation
Interest Rate	7.875%
Salary Increase	Select and ultimate:

Svc	Group 1	Group 4
0	6.75%	7.50%
1	6.25%	7.00%
2	6.25%	6.50%
3	5.75%	6.00%
4	5.75%	5.50%
5	5.25%	5.50%
6	5.25%	5.00%
7	4.75%	5.00%
8	4.75%	4.75%
9+	4.50%	4.75%

COLA	3% of $13,000 *($12,000 prior valuation)*
COLA Frequency	Granted every year
Mortality	RP-2000 table (sex distinct, healthy employees for actives and healthy annuitants for retirees) projected with scale BB and Generational Mortality. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality is the healthy retiree table ages set forward 2 years. *(Prior valuation used RP2000 projected 18 years with scale AA.)*
Overall Disability	

	Ordinary	Accidental
Groups 1 and 2	45%	55%
Group 4	10%	90%

Retirement Rates	Groups 1 and 2: Ages 55 – 70, Group 4: Ages 50 – 65 Post April 1, 2012 Hires: Groups 1 and 2: Ages 60 – 70, Group 4: Ages 50 – 65
Administrative Expense	$982,959 budget estimated for FY 2016 provided by Hampshire County Retirement Board.

Assets

a.	Cash	$4,932,273.56
b.	Pooled Domestic Equity Funds	35,812,869.96
c.	Pooled International Equity Funds	44,033,629.60
d.	Pooled Global Equity Funds	44,280,805.94
e.	Pooled Domestic Fixed Income Funds	28,339,006.01
f.	Pooled Global Fixed Income Funds	20,289,827.77
g.	Pooled Alternative Investments	24,471,332.18
h.	Pooled Real Estate Funds	18,951,330.72
i.	Sub-Total:	$244,018,356.87
j.	Interest Due and Accrued	$.00
k.	Accounts Receivable	2,674,385.84
l.	Accounts Payable	(39,316.93)
m.	Sub-Total:	$2,635,068.91
n.	Market Value of Assets [(i) + (m)]	$246,653,425.78

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2013 (adjusted for payables and receivables) is $246,653,425.78.

- The asset allocation as of December 31, 2013 was approximately 23% cash, receivables, payables and fixed income and 77% equities, alternative investments, hedge funds and real estate.

- Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6% to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 7.00% to 8.50% for domestic equities, 8.25% to 8.50% for international equities, 9.50% for emerging markets, 8.00% for hedge funds, 10% for venture capital, 6.00% for real estate and 4.50% for core fixed income securities. In light of these projections, as well as historical investment returns, the 7.875% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.

Calculation of Valuation Assets

1. Market value of assets including receivable/payable as of 01/01/2014 $246,653,426

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2013	$9,405,361	80%	$7,524,289
b.	2012	$12,091,220	60%	$7,254,732
c.	2011	($14,147,551)	40%	($5,659,021)
d.	2010	$9,579,118	20%	$1,915,824
e.	2009	$17,564,674	0%	$0
f.	2008	($58,757,198)	0%	$0
g.	Total			$11,035,824

3. Valuation assets without corridor as of 01/01/2014 $235,617,602
   (1. - 2.g.)

4. Corridor Check
   a. 90% of Market Value $221,988,083
   b. 110% of Market Value $271,318,768

5. Valuation assets with corridor as of 01/01/2014 $235,617,602

6. Calculation of return on valuation assets
   a. Valuation assets as of 01/01/2012 204,116,196
   b. ER contribs + EE contribs - Ben Pymts - Expenses (1,236,349)
   c. Actual return on valuation assets $32,737,754
      5. - (6.a. + 6.b.)
   d. Weighted value of valuation assets $203,626,869
   e. Return on valuation assets 16.1%
      6.c. / 6.d.

   f. Annualized return on valuation assets 7.7%

Disclosure Information Under GASB Statement 25

SCHEDULES OF FUNDING PROGRESS
(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2014	$235,618	$416,553	$180,935	57%	$73,422	246%
1/1/2012	$204,116	$367,511	$163,394	56%	$68,575	238%
1/1/2010	$179,861	$312,878	$133,017	57%	$68,276	195%
1/1/2007	$163,497	$257,885	$94,388	63%	$68,108	139%
1/1/2006	$149,892	$254,808	$104,916	59%	$66,220	158%

Notes to Schedules

Additional information as of the latest actuarial valuation follows:

Valuation date	1/1/2014
Actuarial cost method	Entry Age Normal
Amortization method	Closed - Approximate level percent of payroll
Remaining amortization period	19 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 5 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value. Market value of assets is $246,653,426.

Actuarial Assumptions

Investment rate of return	7.875% per year
Projected salary increases	Select and Ultimate

Svc	0	1	2	3	4	5	6	7	8	9+
Grp1	6.75%	6.25%	6.25%	5.75%	5.75%	5.25%	5.25%	4.75%	4.75%	4.50%
Grp4	7.50%	7.00%	6.50%	6.00%	5.50%	5.50%	5.00%	5.00%	4.75%	4.75%

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2014

The normal cost for employees on that date was:	$6,560,273	8.9% of payroll
The normal cost for the employer was:	$3,290,154	4.5% of payroll

The actuarial liability for active members was:	$202,305,138
The actuarial liability for retired members was (includes inactives):	$214,247,969
Total actuarial accrued liability:	$416,553,107
System assets as of that date (market value: $246,653,426):	$235,617,602
Unfunded actuarial accrued liability:	$180,935,505

The ratio of system's assets to total actuarial liability was:	57%

As of that date the total covered employee payroll was:	$73,422,208

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	7.875% per annum
Rate of Salary Increase:	Select and ultimate

SCHEDULE OF FUNDING PROGRESS (Dollars in $1,000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2014	$235,618	$416,553	$180,935	57%	$73,422	246%
1/1/2012	$204,116	$367,511	$163,394	56%	$68,575	238%
1/1/2010	$179,861	$312,878	$133,017	57%	$68,276	195%
1/1/2007	$163,497	$257,885	$94,388	63%	$68,108	139%
1/1/2006	$149,892	$254,808	$104,916	59%	$66,220	158%

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.

Asset Valuation Method

Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a five-year rolling period. The phase-in is 20% for year one, 40% for year two, 60% for year three, 80% for year four and 100% for year five. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2016. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

ACTUARIAL ASSUMPTIONS

Investment Return

7.875% per year net of investment expenses.

Salary Increases

Svc	0	1	2	3	4	5	6	7	8	9+
Grp1	6.75%	6.25%	6.25%	5.75%	5.75%	5.25%	5.25%	4.75%	4.75%	4.50%
Grp4	7.50%	7.00%	6.50%	6.00%	5.50%	5.50%	5.00%	5.00%	4.75%	4.75%

Actuarial Methods and Assumptions
(Continued)

Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

Rate of Withdrawal

Service	Group 1 and 2	Group 4
0	15%	1.5%
1	12%	1.5%
2	10%	1.5%
3	9%	1.5%
4	8%	1.5%
5	7.6%	1.5%
10	5.4%	1.5%
15	3.3%	0.0%
20	2.0%	0.0%
25	1.0%	0.0%
30+	0.0%	0.0%

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

Rate of Disability

Age	Group 1 and 2	Group 4
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

Actuarial Methods and Assumptions (Continued)

Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement. A member would need to be eligible for the benefit to be assumed to retire. See Summary of Principal Provisions Number 5 for eligibility requirements.

				Hired after 4/1/2012		
Age	Group 1& 2 Male	Group 1 & 2 Female	Group 4	Group 1& 2 Male	Group 1 & 2 Female	Group 4
50	1%	1.5%	2%	0%	0%	1.5%
51	1%	1.5%	2%	0%	0%	1.5%
52	1%	2.0%	2%	0%	0%	1.5%
53	1%	2.5%	2%	0%	0%	1.5%
54	2%	2.5%	7.5%	0%	0%	5%
55	2%	5.5%	15%	0%	0%	10%
56	2.5%	6.5%	10%	0%	0%	7%
57	2.5%	6.5%	10%	0%	0%	20%
58	5%	6.5%	10%	0%	0%	10%
59	6.5%	6.5%	15%	0%	0%	15%
60	12%	5%	20%	25%	30%	20%
61	20%	13%	20%	20%	13%	20%
62	30%	15%	25%	30%	15%	25%
63	25%	12.5%	25%	25%	12.5%	25%
64	22%	18%	30%	22%	18%	30%
65	40%	15%	100%	40%	15%	100%
66	25%	20%	N/A	25%	20%	N/A
67	25%	20%	N/A	25%	20%	N/A
68	30%	25%	N/A	30%	25%	N/A
69	30%	20%	N/A	30%	20%	N/A
70	100%	100%	N/A	100%	100%	N/A

Mortality

The RP-2000 mortality table (sex-distinct) projected 19 years with scale BB.
(*Prior valuation used RP-2000 mortality table projected 17 years with scale AA.).* During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used.

Disabled Life Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct) projected 19 years with scale BB set-forward by 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.
(Prior valuation used RP-2000 mortality table projected 17 years with scale AA).

Actuarial Methods and Assumptions (Continued)

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Family Composition

Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).

Cost-of-Living Increases

A 3% COLA on the first $13,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $982,959 for the Fiscal Year 2016 excluding investment management fees and custodial fee is added to the Normal Cost.

Step Increases

Step increases are assumed to be part of the salary increase assumption.

Credited Service

All service is assumed to be due to employment with the municipality.

3(8)(c)

Net 3(8)(c) payments are added to the contribution amount, they have not been included in the Accrued Liability. They are assumed to remain constant.

Contribution Timing

Contributions are assumed to be made semi-annually.

Municipality

Refers to the various employers that comprise the Retirement System.

Valuation Date

January 1, 2014.

Summary of Principal Provisions

1. PARTICIPANT

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

- Group 1: general employees
- Group 2: employees in specified hazardous occupations (e.g., electricians)
- Group 4: police and firefighters

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members hired after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

5. SERVICE RETIREMENT

a. Eligibility

Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If hired prior to 1978 or a member of group 4, attainment of age 55.

Summary of Principal Provisions (Continued)

b. Retirement Allowance

Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45
	Hired after April 1, 2012*		
2.5%	67+	62+	57+
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

*Reduction is .125% for each year early instead of .15% per year for employees with over 30 years of service.

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section above with the member eligible to start collecting a benefit at age 55, (or age 57 for post-April 1, 2012 hires) or defer until later at his or her discretion. If a member chooses, his or her contributions with interest may be withdrawn. The amount of interest he or she will receive depends on length of service and whether or not the termination of employment was voluntary.

Summary of Principal Provisions
(Continued)

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

Non-job related disability after completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section and calculated as if the member had attained age 55 (or age 57 for those hired after April 1, 2012), if younger. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

Disabled as a result of an accident in the performance of duties. No age or service requirement.

b. Retirement Allowance

72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

9. NON-OCCUPATIONAL DEATH

a. Eligibility

Dies while in active service, but not due to occupational injury.

b. Retirement Allowance

Benefit as if Option C had been elected (see below) and member had attained age 55 (or age 57 for those hired after April 1, 2012) if younger. Minimum monthly benefits provided as follows: spouse - $500, first child - $120, each additional child - $90

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

Summary of Principal Provisions
(Continued)

b. Benefit Amount

72% of pay plus refund of annuity savings fund balance. In the case of an accidental disability retiree who dies of the same cause, the beneficiary receives 72% of the last 12 months salary or the current pension amount, whichever is greater.

11. COST-OF-LIVING INCREASES

An increase of up to 3% applied to the first $13,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A

Allowance payable monthly for the life of the member.

- Option B

Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.

- Option C

Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

Glossary of Terms

- Present Value of Benefits

  Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.

- Actuarial Cost Method

  The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.

Glossary (continued)

- Actuarial Assumptions

  Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.

- Actuarial Accrued Liability

  The portion of the Present Value of Benefits that is attributable to past service.

- Normal Cost

  The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.

- Actuarial Assets

  Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a five-year rolling period. The phase-in is 20% for year one, 40% for year two, 60% for year three, 80% for year four and 100% for year five. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

- Unfunded Actuarial Accrued Liability

  That portion of the Actuarial Accrued Liability not covered by System Assets.

- PERAC

  Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.

- PRIT

  Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.

- GASB

  Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).