January 1, 2014

Actuarial Valuation Report

Stoneham Retirement Board

Lawrence B. Stone

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July 31, 2014

Stoneham Retirement Board
35 Central Street, Basement Level
Stoneham, MA 02180

Dear Stoneham Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2014 actuarial valuation of the Stoneham 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 Stoneham 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 increase as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. 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 eight years (fully funded by 2023). The contribution is set to increase by 7.85% each year. The contribution in Fiscal 2024 decreases instead of increasing.

The amortization payments are the amount left over after subtracting the normal cost and the 3(8)(c) payments from the contribution amount.

The contribution amount for Fiscal Year 2016 is $5,276,670 which is $1,223 more than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Stoneham 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

Lawrence B. Stone
Member, American Academy of Actuaries

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Introduction

This report presents the results of the actuarial valuation of the Stoneham 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, death, etc.)

January 1, 2014 Valuation Summary

	January 1, 2014	January 1, 2012	Change
Contribution Fiscal 2016	$5,276,670	$5,275,447	$1,223
Funding Schedule Length	8 years	8 years	0 years
Annual Increase in Contribution	7.875% annual increase	$41,423 over prior rate of increase	N/A
Funding Ratio	64.5%	66%	-1.5%
Interest Rate Assumption	7.875%	8.00%	-0.13%
Salary Increase Rate Assumption	Select and Ultimate Groups 1 and 2: 6.25% first 8 years Group 4: 8.75% first 5 years 4.25% Ultimate	Select and Ultimate Groups 1 and 2: 6.75% first 8 years Group 4: 9.50% first 5 years 4.50% Ultimate	

- The Fiscal Year 2016 contribution is $1,223 more than the planned 2016 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a five year asset smoothing method. 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, over the two-year period from January 1, 2012 through December 31, 2013, experienced a 13.7% annual return on the market value of assets versus our assumption of an 8.00%. There was about a $4,015,000 net actuarial gain in calendar year 2013 and a $2,746,000 net actuarial gain in calendar year 2012. The System's asset portfolio, effective December 31, 2013 is approximately 80% equities and 20% fixed income and short-term investments. The interest rate assumption was lowered to 7.875% to reflect anticipated future market performance. This increased the accrued liability by $1.2 million.

- The salary increase assumption was changed from the prior valuation. We used a select and ultimate table (Group 1 and 2, 6.25% first 8 years with an ultimate rate of 4.25%; Group 4, 8.75% grading down to 4.25% after 5 years). This represents a decrease in the ultimate rate from 4.50% and some decrease in the early years of service. This assumption is based on expected future experience. Total compensation changed by 10.5% over the prior valuation; however average annual compensation (compensation divided by number of active members) only changed by 3.6%.

- The funding level of the Stoneham Retirement System is 64.5% compared to 66% for the January 1, 2012 actuarial valuation. Chapter 68 requires a minimum funding ratio of 65% along with additional criteria in order to avoid being labeled an "underperforming system". Note that the system would not be considered an underperforming system since it is over 65% funded using other reasonable assumption sets. The funding level is estimated to be above the median for Massachusetts' Contributory Retirement Systems.

The schedule length is eight (8) years, a length consistent with the 8 years remaining from the 10 year schedule from the prior valuation. The maximum period permitted under Section 22D of Chapter 32 of the Massachusetts General Laws is 15 years (Fiscal 2030). The payments are set so that the total contribution amount will increase by 7.85% each year, except for a 4.34% increase for FY 2023. Previously, the amortization was set so that the contribution would increase by $300,000 initially, and by the prior year's level of increase plus an additional $41,423 for each successive year. This schedule change resulted in a $1,223 increase as compared to the expected FY 2016 contribution level from the prior valuation.

Note that this contribution for Fiscal 2016 is over $800,000 higher than a 15-year schedule with an amortization of 4.50% (this is a schedule which satisfies Section 22D requirements).

- Non-economic assumptions were changed from the January 1, 2012 actuarial valuation. The mortality assumption is based upon the Generational Mortality table with Scale BB. The previous assumption used the RP2000 Table projected 17 years with Scale AA. The net effect of this change increased the accrued liability by $4.2 million.

January 1, 2014 Actuarial Valuation Results

	January 1, 2014	January 1, 2012	Percentage Change
Funding			
Contribution for Fiscal 2016	$5,276,670		
Contribution for Fiscal 2016 based on current schedule		$5,275,447	0.0%
Members *			
▪ Actives			
a. Number	273	256	6.6%
b. Annual Compensation	$12,838,959	$11,623,693	10.5%
c. Average Annual Compensation	$47,029	$45,405	3.6%
d. Average Attained Age	49.9	49.2	1.4%
e. Average Past Service	12.9	13	-0.8%
▪ Retired, Disabled and Beneficiaries			
a. Number	285	287	-0.7%
b. Total Benefits*	$6,782,445	$6,611,871	2.6%
c. Average Benefits*	$23,798	$23,038	3.3%
d. Average Age	74.9	73.7	1.6%
▪ Inactives			
a. Number	75	66	13.6%
Normal Cost			
a. Total Normal Cost as of January 1, 2014	$1,810,794	$1,564,280	15.8%
b. Less Expected Members' Contributions	1,156,074	1,032,682	11.9%
c. Normal Cost to be funded by the Municipality	$654,720	$531,598	23.2%
d. Adjustment to July 1, 2015	44,687	36,284	23.2%
e. Administrative Expense Assumption	265,149	239,695	10.6%
f. Normal Cost Adjusted to July 1, 2015	$964,556	$807,576	19.4%
Actuarial Accrued Liability as of January 1, 2014			
a. Active Members	$39,010,546	$33,469,700	16.6%
b. Inactive Members	633,417	597,004	6.1%
c. Retired Members and Beneficiaries	63,333,146	60,549,478	4.6%
d. Total	$102,977,109	$94,616,182	8.8%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2014	$102,977,109	$94,616,182	8.8%
b. Less Actuarial Value of Assets as of January 1, 2014	66,425,894	62,496,448	6.3%
c. Unfunded Actuarial Accrued Liability as of January 1, 2014	$36,551,215	$32,119,734	13.8%
d. Adjustment to July 1, 2015	$523,559	$630,595	
e. Unfunded Actuarial Accrued Liability as of July 1, 2015	$37,074,774	$32,750,329	

*Excluding State reimbursed COLA

Demographic Information

	January 1, 2014	Percentage Change
Members		
▪ Actives		
a. Number	273	6.6%
b. Annual Compensation	$12,838,959	10.5%
c. Average Annual Compensation	$47,029	3.6%
d. Average Attained Age	49.9	1.4%
e. Average Past Service	12.9	-0.8%
▪ Retired, Disabled and Beneficiaries		
a. Number	285	-0.7%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	$6,782,445	2.6%
▪ Inactives		
a. Number	75	13.6%

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

History of Active Participants

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2014	273	49.9	12.9	$47,029
2012	256	49.2	13	$45,405
2011	268	N/A	N/A	$44,015

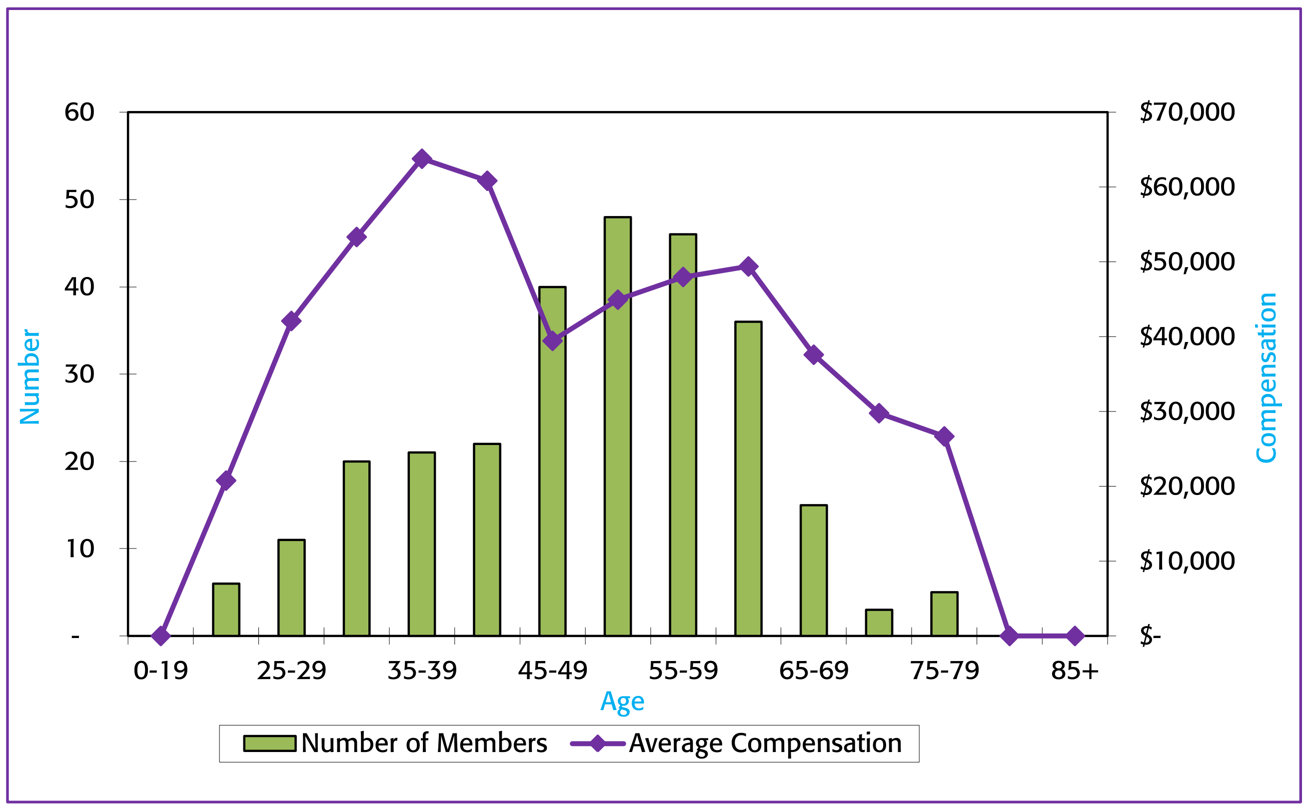
- Employee age has increased by .5 years and service has decreased by .1 years over the course of the past two years. This differs somewhat from the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 3.6% (1.8% annually) over the same time period.

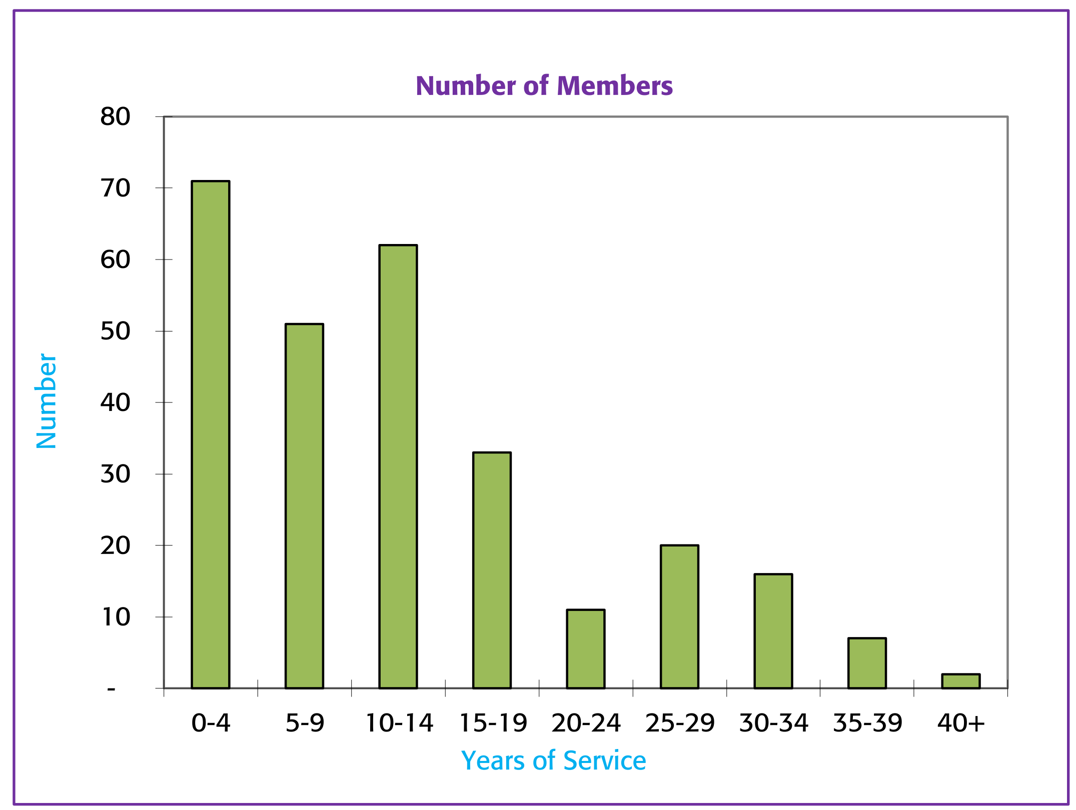
The charts on the following pages summarize demographic information regarding active and retiree members.

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	5	1	-	-	-	-	-	-	-	6	124,606	20,768
25-29	8	3	-	-	-	-	-	-	-	11	463,118	42,102
30-34	10	8	2	-	-	-	-	-	-	20	1,066,532	53,327
35-39	2	4	13	2	-	-	-	-	-	21	1,339,467	63,784
40-44	7	1	7	7	-	-	-	-	-	22	1,338,530	60,842
45-49	14	14	4	5	3	-	-	-	-	40	1,577,718	39,443
50-54	9	11	15	4	4	2	2	1	-	48	2,157,368	44,945
55-59	8	5	11	7	-	7	7	-	1	46	2,207,187	47,982
60-64	7	1	7	5	3	5	4	4	-	36	1,777,952	49,388
65-69	1	1	3	3	1	4	1	-	1	15	563,795	37,586
70-74	-	-	-	-	-	1	1	1	-	3	89,329	29,776
75-79	-	2	-	-	-	1	1	1	-	5	133,357	26,671
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85+	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	71	51	62	33	11	20	16	7	2	273	$ 12,838,959	$ 47,029





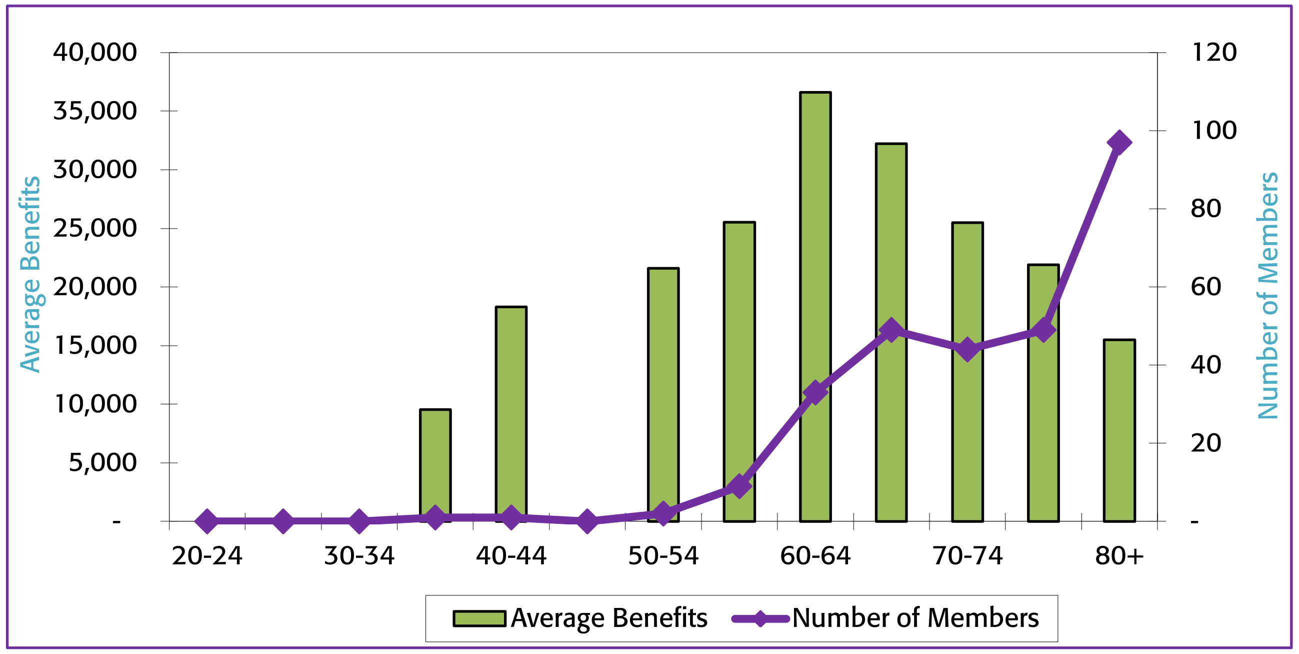
Distribution of Plan Members as of January 1, 2014

Retired Members

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	1	9,554	9,554
40-44	1	18,299	18,299
45-49	-	-	-
50-54	1	13,583	13,583
55-59	8	22,697	181,575
60-64	25	35,458	886,446
65-69	44	31,895	1,403,361
70-74	40	24,704	988,159
75-79	46	21,805	1,003,015
80+	94	15,372	1,444,999
TOTAL	260	$ 22,881	$ 5,948,993

Disabled Members			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	1	29,632	29,632
55-59	1	48,235	48,235
60-64	8	40,147	321,175
65-69	5	35,087	175,434
70-74	4	33,404	133,615
75-79	3	23,088	69,265
80+	3	18,699	56,097
TOTAL	25	$ 33,338	$ 833,453

Total			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	1	9,554	9,554
40-44	1	18,299	18,299
45-49	-	-	-
50-54	2	21,607	43,215
55-59	9	25,534	229,809
60-64	33	36,595	1,207,621
65-69	49	32,220	1,578,796
70-74	44	25,495	1,121,775
75-79	49	21,883	1,072,280
80+	97	15,475	1,501,097
TOTAL	285	$ 23,798	$ 6,782,446



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

	January 1, 2014	% of Payroll*
Gross Normal Cost (GNC)	$1,810,794	14.1%
Employees Contribution	$1,156,074	9.0%
Net Normal Cost (NNC)	$654,720	5.1%
Adjusted to Beginning of Fiscal Year 2016	$44,687	
Administrative Expense	$265,149	2.1%
Adjusted Net Normal Cost With Admin. Expense	$964,556	

*Payroll paid in 2013 for employees as of January 1, 2014 is $12,838,959. 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 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			$	39,010,546	16.6%
Superannuation	$	35,796,662			
Death	$	816,020			
Disability	$	2,111,252			
Withdrawal	$	286,612			
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			$	63,966,563	4.6%
Retirees and Beneficiaries	$	54,438,308			
Disabled	$	8,894,838			
Inactive	$	633,417			
Total Actuarial Accrued Liability (AAL)			$	102,977,109	8.8%
Actuarial Value of Assets (AVA)			$	66,425,894	6.3%
Unfunded Actuarial Accrued Liability			$	36,551,215	13.8%
Funded Ratio (AVA / AAL)					
2014 (7.875% interest rate):		64.5%			
2012 (8.00% interest rate):		66%			

- 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.

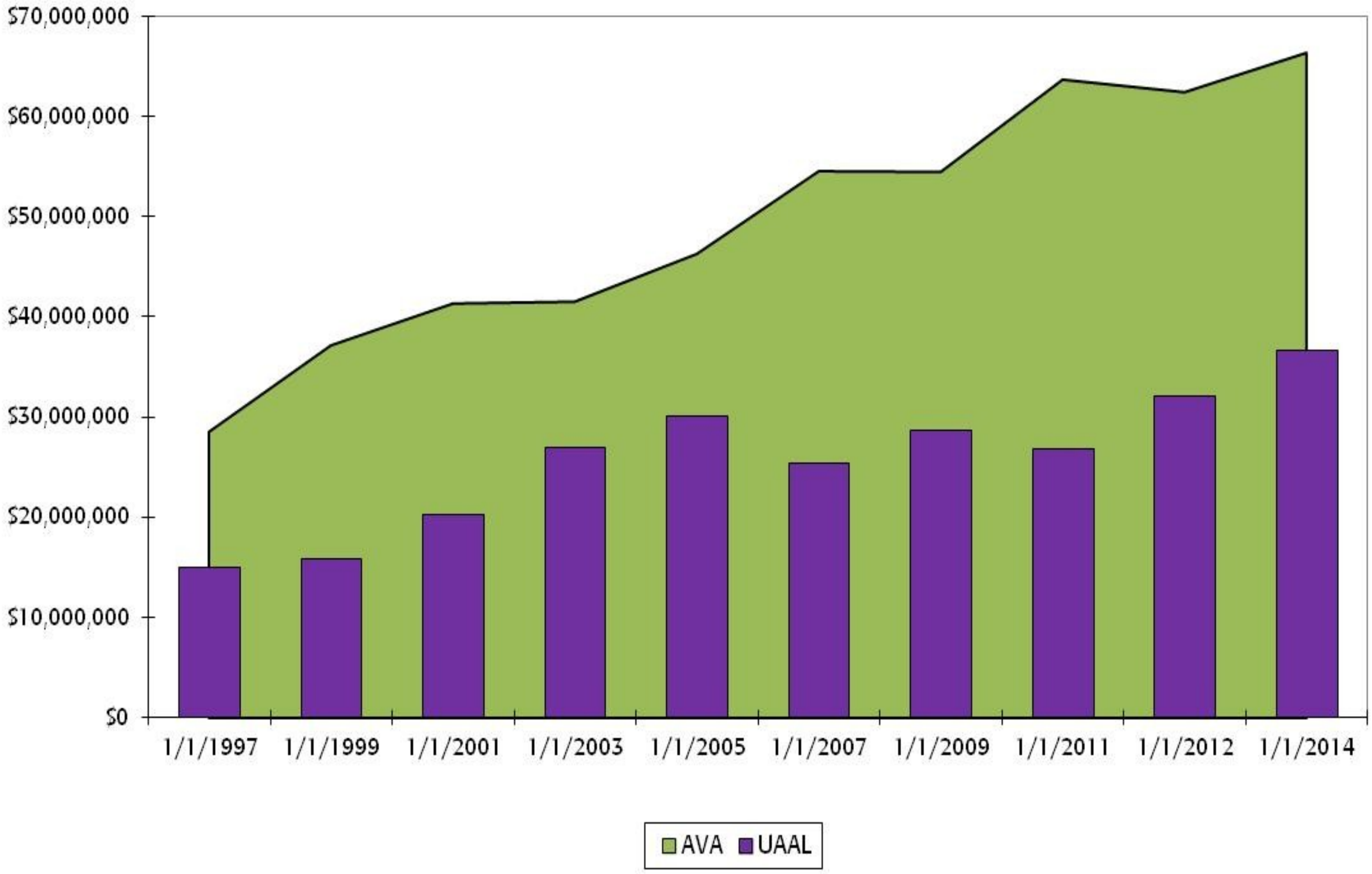
- The total AAL is $102,977,109. This along with an actuarial value of assets of $66,425,894 produces a funded status of 64.5%. This compares to a funded status of 66% for the 2012 valuation.

The lower funded status is attributable to the following factors:

- Change in interest rate from 8% to 7.875%
- Change in mortality assumption
- Recognition of loss from calendar 2008.

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 ten 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 (including admin. expenses)	964,556
Net 3(8)(c) Payments	74,576
Amortization	4,204,311
Total Appropriation required for Fiscal 2016	5,276,670

- The funding schedule is composed of the 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 on August 1. The 3(8)(c) payments are the amount that the Stoneham Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system. The net 3(8)(c) payments is the difference between what the Stoneham Retirement System paid out minus what was received by the System.

- The contribution amount for Fiscal 2016 is $5,276,670. The funding schedule is presented on page 11. The schedule's length is eight (8) years (for the fresh start base) which is the remainder of the 10 year schedule from the January 1, 2012 valuation. The maximum funding schedule length allowed by Section 22D of Chapter 32 of the Massachusetts General Laws is fifteen years to Fiscal 2030.

- 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. In this funding schedule, the contribution increases 7.85% a year.

Fiscal Year	Normal Cost	Unfunded Liability*	Funding Amortization of UAL	Net 3(8)(c) Payments	Schedule Contribution	Payments Adjusted to August 1st
2016	964,556	37,074,774	4,204,311	74,576	5,243,443	5,276,670
2017	1,007,961	35,459,012	4,572,516	74,576	5,655,053	5,690,889
2018	1,053,319	32,003,981	4,971,080	74,576	6,098,975	6,137,624
2019	1,100,719	29,161,742	5,402,450	74,576	6,577,744	6,619,427
2020	1,150,251	23,479,361	5,869,270	74,576	7,094,097	7,139,052
2021	1,202,012	18,996,886	6,374,396	74,576	7,650,984	7,699,468
2022	1,256,103	13,616,511	6,920,907	74,576	8,251,586	8,303,876
2023	1,312,627	7,222,882	7,222,882	74,576	8,610,086	8,664,647
2024	1,371,696	0	0	74,576	1,446,272	1,455,437

Amortization of Unfunded Liability as of July 1, 2015

Year	Type	Original Amort. Amount	Percentage Increasing**	Original # of Years	Current Amort. Amount	Years Remaining
2003	2002 ERI	73,542	3.50%	18	115,017	5
2016	Fresh Start	N/A	N/A	8	N/A	8

* Includes recognition of asset/gains and losses in Fiscal 2018 and 2020

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.
Original Amortization 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 Amortization 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 the amount resulting from increasing the contribution by 7.85% each year, except for Fiscal 2024 where there is a decrease.

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% (8.00% in prior valuation).
Salary Increase	4.25% Ultimate rate 3.75% base rate while receiving steps, plus the following steps: • Group 1 and 2: 2.50% for the first 8 years of service • Group 4: 5.00% for the first 5 years of service
COLA	3% of $13,000
COLA Frequency	Granted every year
Mortality	RP-2000 Generational Mortality table with scale BB. 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 RP-2000 Generational Mortality table with scale BB, ages set forward 2 years. (Prior valuation used RP2000 with 17 year projection.)
Overall Disability	Groups 1 and 2 45% ordinary disability 55% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2 Ages 55 – 70 Group 4 Ages 50 – 65
Administrative Expense	$265,149 budget estimated for FY 2016 provided by Stoneham Retirement Board.

Assets

a.	Cash	$	168,351.91
b.	PRIT Cash		130,040.67
c.	PRIT Fund		69,531,856.05
d.	Sub-Total:	$	69,830,248.63
e.	Accounts Receivable		62,753.51
f.	Accounts Payable		(1,306.00)
g.	Sub-Total:	$	61,447.51
h.	Market Value of Assets [(d) + (g)]	$	69,891,696.14

- 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 $69,891,696.14.

- The asset allocation is approximately 20% fixed income, cash, receivables and payables and 80% equities, alternative investments, hedge funds and similar types of investments. 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 6.25% to 9.00% for equities and 3.65 to 6.00% for 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.

- Actuarial value of assets (AVA) of $66,425,894 is based on a five-year smoothing method. Investment gains or losses above or below the expected rate of investment return are recognized over 5 years, 20% per year. The AVA must be no more than 110% of the market value of assets and no less than 90% of the market value of assets.

- Future contributions will be affected by the deferred net losses. At the time of the next valuation, as of January 1, 2016, there will be $1,315,000 of net gains recognized. This and other existing unrecognized net gains and losses have already been reflected in the funding schedule shown on page 11 of this report.

Calculation of Valuation Assets as of January 1, 2014

FIVE-YEAR ASSET SMOOTHING

1. Market value of assets including receivable/payable as of 01/01/2014 — $69,891,696

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2013	$4,015,308	80%	$3,212,246
b.	2012	$2,724,258	60%	$1,634,555
c.	2011	($4,652,559)	40%	($1,861,024)
d.	2010	$2,400,120	20%	$480,024
e.	2009	$3,874,355	0%	$0
f.	2008	($24,472,743)	0%	$0
g.	Total			$3,465,802

3. Valuation assets without corridor as of 01/01/2014 (1. - 2.g.) — $66,425,894

4. Corridor Check
   a. 85% of Market Value — $59,407,942
   b. 115% of Market Value — $80,375,450

5. Valuation assets with corridor as of 01/01/2014 3. within Corridor — $66,425,894

6. Calculation of return on valuation assets

   a. Valuation assets as of 01/01/2013 — $62,496,448

   b. ER contribs + EE contribs - Ben Pymts - Expenses — $(2,993,535)

   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $6,922,982

   d. Weighted value of valuation assets — $60,509,753

   e. Return on valuation assets 6.c. / 6.d. — 11.4%

   f. Annualized return on assets — 5.6%

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	$66,426	$102,977	$36,551	64.5%	$12,839	285%
1/1/2012	$62,496	$94,616	$32,120	66%	$11,624	276%
1/1/2011	$63,752	$90,520	$26,768	70%	$12,386	216%
1/1/2009	$54,534	$83,201	$28,667	66%	$11,800	243%
1/1/2007	$54,605	$80,019	$25,414	68%	$11,578	220%

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	Level 7.85% increase of contribution amount
Remaining amortization period	8 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 $69,891,696.14
Actuarial assumptions:	
Investment Rate of Return	7.875% per year
Projected Salary Increases	Group 1 and 2: 6.25% first 8 years of service Group 4: 8.75% first 5 years of service 4.25% ultimate rate

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:	$1,156,074	9.0%	of payroll
The normal cost for the employer was:	$654,720	5.1%	of payroll

The actuarial liability for active members was:	$39,010,546
The actuarial liability for retired members was (includes inactives):	$63,966,563
Total actuarial accrued liability:	$102,977,109
System assets as of that date:	$66,425,894
Unfunded actuarial accrued liability:	$36,551,215

The ratio of system's assets to total actuarial liability was:	64.5%

As of that date the total covered employee payroll was:	$12,838,959

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

Investment Return:	7.875% per annum
Rate of Salary Increase:	Select and ultimate rate (4.25% ultimate rate)

SCHEDULE OF FUNDING PROGRESS (Dollars in $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	$66,426	$102,977	$36,551	64.5%	$12,839	285%
1/1/2012	$62,496	$94,616	$32,120	66%	$11,624	276%
1/1/2011	$63,752	$90,520	$26,768	70%	$12,386	216%
1/1/2009	$54,534	$83,201	$28,667	66%	$11,800	243%
1/1/2007	$54,605	$80,019	$25,414	68%	$11,578	220%

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.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

Select and ultimate salary assumption – 3.75% base rate during period of receiving steps plus 2.50% steps for groups 1 and 2 during the first 8 years of service, 5% steps for group 4 for the first 5 years of service. Ultimate rate of 4.25%.

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, once the member has achieved 10 years of service:

				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 Generational Mortality table (sex-distinct) with scale BB. (Prior valuation used RP-2000 mortality table with 17 year projection). During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used. In-service death is assumed to be 55% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

The RP-2000 Generational Mortality table for healthy annuitants (sex-distinct) 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 with 17 year projection).

Actuarial Methods and Assumptions
(Continued)

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 $265,149 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.

Contribution Timing

Contributions are assumed to be made August 1st of the fiscal year.

Total Payroll Increase

The total payroll is assumed to increase at 4.00% per year.

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 3 consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement.

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 (for elected and appointed members, 6 years in the event of involuntary termination).

b. Retirement Allowance

Determined in the same manner as 5b, with the benefit payable at age 55, unless deferred until later at the member's option. Member contributions with interest may be withdrawn after separation from service. If contributions are withdrawn, eligibility for retirement benefits is forfeited. Members who voluntarily terminate with at least ten years of creditable service, or are involuntarily terminated, will receive 100% of the regular interest that has accrued to their Annuity Savings Account. Members who voluntarily terminate with less than ten years of service will receive interest on their Annuity Savings Account at the annual rate of 3%.

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 5b. with the benefit payable immediately. 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. 2 years of service.

b. Retirement Allowance

Benefit as if Option C had been elected (see below). Minimum monthly benefits provided as follows: spouse - $250, first child - $120, each additional child - $90.

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

Accumulated deductions are paid out in a lump sum and a yearly pension equal to 72% of pay. Also, a dependent's allowance per year for each child.

Summary of Principal Provisions
(Continued)

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.

- 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).