January 1, 2014

Actuarial Valuation Report

Northbridge Retirement Board

Lawrence B. Stone

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December 4, 2014

Northbridge Retirement Board
Town Hall
7 Main Street
Whitinsville, MA 01588

Dear Northbridge Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2014 actuarial valuation of the Northbridge 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 Northbridge 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 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 twenty-three years (fully funded in Fiscal 2038). The amortization of the unfunded liability is set to increase by 4.00% each year.

The contribution amount for Fiscal Year 2016 is $1,471,377 which is $41,951 more than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted biennially. The Northbridge 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

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Introduction

This report presents the results of the actuarial valuation of the Northbridge 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	$1,471,377	$1,429,426	$41,951
Funding Schedule Length (as of Fiscal 2016)	23 years	20 years	3 years
Amortization Increase	4.00%	3.91%	.09%
Funding Ratio	65%	62%	2% (rounding)
Interest Rate Assumption	8.00%	8.00%	0.00%
Salary Increase Rate Assumption	Select and 4.00% Ultimate: 2.00% Ultimate for 2014 and 2015 3.50% Ultimate while receiving steps	Select and 4.00% Ultimate: 2.00% Ultimate for 2013 and 2014	

- The Fiscal Year 2016 contribution is $41,951 greater than the planned 2016 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a four-year asset smoothing method. In this approach, asset gains and losses are recognized over a four-year period. The purpose of this approach is to avoid wide swings in asset value from one year to the next.

- Note that the funding schedule shown on page 11 of the report does not reflect the recognition of deferred investment gains. If we had reflected the deferred investment gains the Fiscal 2018 contribution amount would have been lower than the Fiscal 2017 contribution amount. Section 22F of Massachusetts General Laws prohibits such a reduction.

- The System, over the two-year period from January 1, 2012 through December 31, 2013, experienced a 14.0% annual return on the market value of assets versus our assumption of 8.00%. There was a $1,580,266 net actuarial gain in calendar year 2013, and a $1,137,360 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 maintained 8.00% to reflect anticipated future market performance.

- The salary increase assumption was changed from the prior valuation. The following summarizes the select and ultimate assumption used, including changes:

  - Groups 1 and 2: 5.00% steps in the first five years of service (same as prior valuation)
  - Group 4: 4.00% steps in the first four years of service, longevity increases of 2.00% in years 10, 15, and 20 (same as prior valuation)
  - Ultimate rate: 4.00% (same as prior valuation)
  - Ultimate rate reduced to 3.50% for employees receiving steps (change from prior valuation)
  - Ultimate rate reduced to 2.00% through 2014-15 (2012-13 in the prior valuation)

  This assumption is based on expected future experience. This change decreased the accrued liability by $378 thousand. Total compensation changed by 12.7% over the prior valuation; however average annual compensation (compensation divided by number of active members) only changed by 1.6%.

- The funding level of the Northbridge Retirement System is 65% compared to 62% 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". Northbridge Retirement System would <u>not</u> be considered an underperforming system. The funding level is estimated to be near the median for Massachusetts' Contributory Retirement Systems.

The schedule length is twenty-three (23) years, which is three years longer than the 20 years remaining from the 22 year schedule from the prior valuation. The maximum period permitted under Section 22F of Chapter 32 of the Massachusetts General Laws is 25 years (Fiscal 2040). The amortization of the unfunded liability increases by 4.00% each year, which is a .09% increase from the 3.91% amortization in the prior funding schedule. The increase in funding schedule length is due in part to a change in the mortality assumption which led to an increase in the unfunded actuarial accrued liability.

- Non-economic assumptions were changed from the January 1, 2012 actuarial valuation. The mortality assumption is based upon the RP-2000 table (sex-distinct) projected with Generational Mortality and Scale BB. The previous assumption used the RP-2000 Table projected 17 years with Scale AA. The net effect of this change increased the accrued liability by $1.7 million.

- Projection using generational mortality produces a different mortality table for each year of birth. In this manner, the expected continued increase in how long a person lives is reflected. For example, a participant who is currently age 25 (and will not turn 65 for another 40 years) would be expected to live appreciably longer past 65 years of age than someone who is currently 65. Thus a superannuation retirement benefit starting in 2054 would on average be paid for appreciably longer than a similar benefit beginning in 2014.

January 1, 2014 Actuarial Valuation Results

	January 1, 2014	January 1, 2012	Percentage Change
Funding			
Contribution for Fiscal 2016	$1,471,377		
Contribution for Fiscal 2016 based on current schedule		$1,429,426	2.9%
Members *			
▪ Actives			
a. Number	204	184	10.9%
b. Annual Compensation	$8,222,037	$7,298,729	12.7%
c. Average Annual Compensation	$40,304	$39,667	1.6%
d. Average Attained Age	47.1	46.8	0.6%
e. Average Past Service	9.9	10.3	-3.5%
▪ Retired, Disabled and Beneficiaries			
a. Number	110	108	1.9%
b. Total Benefits*	$1,997,142	$1,850,321	7.9%
c. Average Benefits*	$18,156	$17,133	6.0%
d. Average Age	74.3	74.2	0.1%
▪ Inactives			
a. Number	52	36	44.4%
Normal Cost			
a. Total Normal Cost as of January 1, 2014	$1,073,229	$917,813	16.9%
b. Less Expected Members' Contributions	735,236	654,844	12.3%
c. Normal Cost to be funded by the Municipality	$337,993	$262,969	28.5%
d. Adjustment to July 1, 2015	21,774	16,941	28.5%
e. Administrative Expense Assumption	102,766	92,128	11.5%
f. Normal Cost Adjusted to July 1, 2015	$462,533	$372,038	24.3%
Actuarial Accrued Liability as of January 1, 2014			
a. Active Members	$20,688,934	$17,315,662	19.5%
b. Inactive Members	341,753	320,418	6.7%
c. Retired Members and Beneficiaries	19,022,823	17,323,844	9.8%
d. Total	$40,053,510	$34,959,924	14.6%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2014	$40,053,510	$34,959,924	14.6%
b. Less Actuarial Value of Assets as of January 1, 2014	25,886,903	21,760,036	19.0%
c. Unfunded Actuarial Accrued Liability as of January 1, 2014	$14,166,607	$13,199,888	7.3%
d. Adjustment to July 1, 2015	$914,446	$923,563	
e. Unfunded Actuarial Accrued Liability as of July 1, 2015	$15,081,053	$14,123,451	

*Excluding State reimbursed COLA

Demographic Information

	January 1,2014	Percentage Change
Members		
▪ Actives		
a. Number	204	10.9%
b. Annual Compensation	$8,222,037	12.7%
c. Average Annual Compensation	$40,304	1.6%
d. Average Attained Age	47.1	0.6%
e. Average Past Service	9.9	-3.5%
▪ Retired, Disabled and Beneficiaries		
a. Number	110	1.9%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	$1,997,142	7.9%
▪ Inactives		
a. Number	52	44.4%

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

History of Active Participants

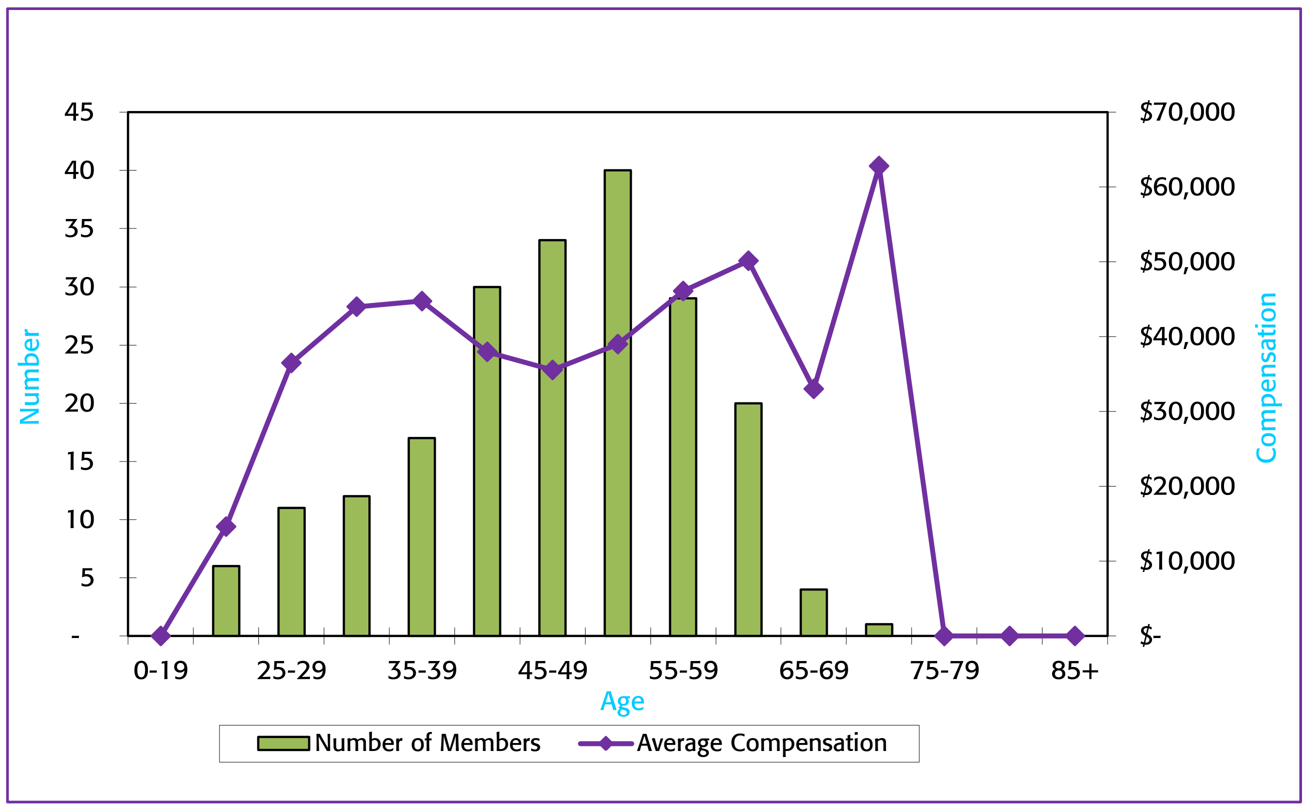
Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2014	204	47.1	9.9	$40,304
2012	184	46.8	10.3	$39,667
2010	182	46.7	9.5	$38,926
2008	177	45.6	9.0	$38,602
2006	186	45.4	8.9	$35,334
2004	168	46.0	9.0	$34,206
2002	189	44.7	7.7	$30,896
2000	161	45.2	8.7	$28,278

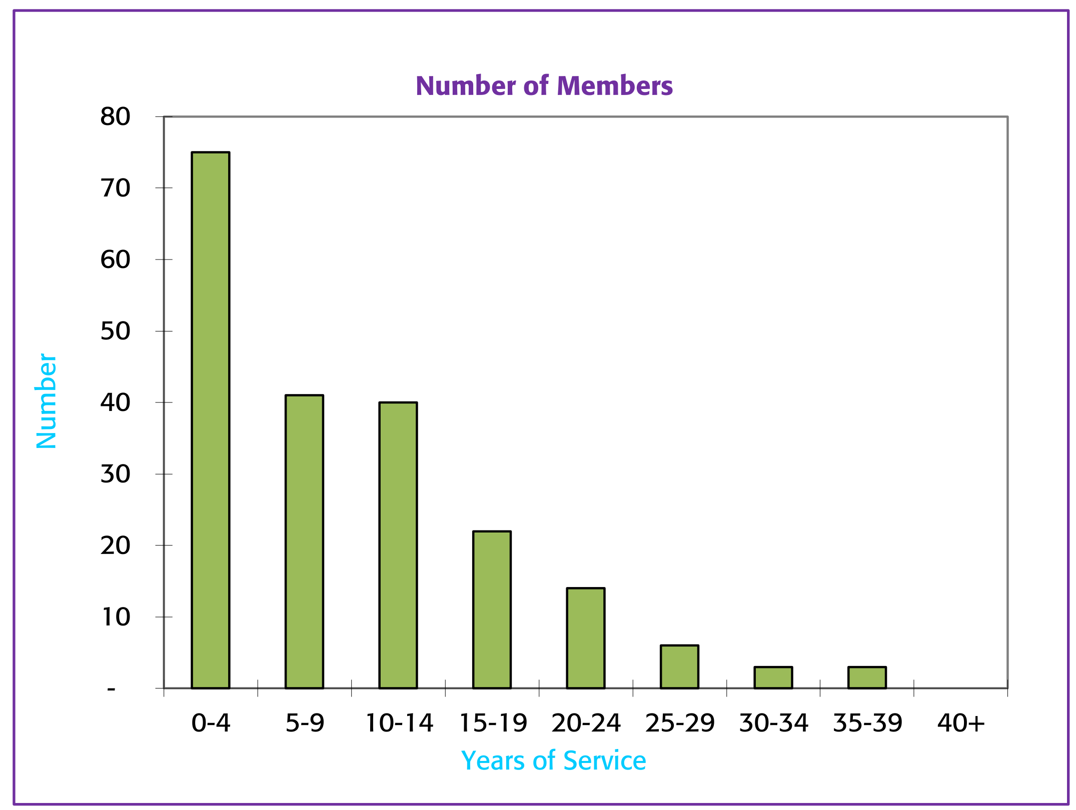
- Employee age has increased by 1.9 years and service has increased by 1.2 years over the course of the past fourteen years. This is consistent with the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 42.5% (2.6% annually) over the same time period. There has been a turnaround in the trend towards higher average age. We believe this is mainly due to increased hiring of non-teachers in the school department.

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	6	-	-	-	-	-	-	-	-	6	87,690	14,615
25-29	11	-	-	-	-	-	-	-	-	11	401,438	36,494
30-34	7	3	2	-	-	-	-	-	-	12	528,171	44,014
35-39	7	4	5	-	1	-	-	-	-	17	760,888	44,758
40-44	17	7	3	2	1	-	-	-	-	30	1,139,395	37,980
45-49	12	11	5	4	1	1	-	-	-	34	1,208,775	35,552
50-54	5	9	12	6	5	2	1	-	-	40	1,560,581	39,015
55-59	7	3	7	6	3	1	1	1	-	29	1,337,156	46,109
60-64	3	2	5	3	2	2	1	2	-	20	1,003,017	50,151
65-69	-	2	1	1	-	-	-	-	-	4	132,110	33,028
70-74	-	-	-	-	1	-	-	-	-	1	62,815	62,815
75-79	-	-	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85+	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	75	41	40	22	14	6	3	3	-	204	$ 8,222,037	$ 40,304





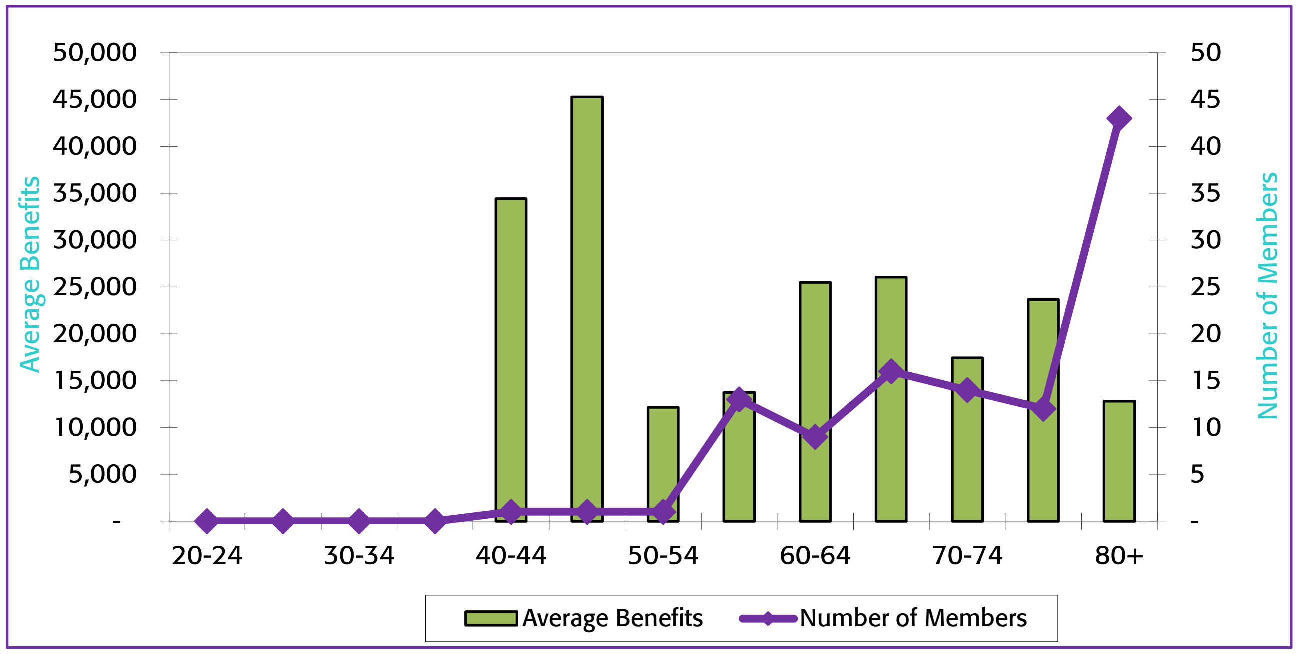
Distribution of Plan Members as of January 1, 2014

Retired Members

Retired Members and Beneficiaries					
Age	Number		Average Benefit		Total Benefit
20-24	-		-		-
25-29	-		-		-
30-34	-		-		-
35-39	-		-		-
40-44	-		-		-
45-49	-		-		-
50-54	-		-		-
55-59	11		8,996		98,951
60-64	7		23,415		163,902
65-69	16		26,073		417,164
70-74	14		17,464		244,491
75-79	12		23,670		284,035
80+	41		12,614		517,183
TOTAL	**101**	**$**	**17,086**	**$**	**1,725,726**

Disabled Members					
Age	Number		Average Benefit		Total Benefit
20-24	-		-		-
25-29	-		-		-
30-34	-		-		-
35-39	-		-		-
40-44	1		34,451		34,451
45-49	1		45,315		45,315
50-54	1		12,153		12,153
55-59	2		39,913		79,825
60-64	2		32,686		65,372
65-69	-		-		-
70-74	-		-		-
75-79	-		-		-
80+	2		17,150		34,301
TOTAL	**9**	**$**	**30,157**	**$**	**271,416**

Total					
Age	Number		Average Benefit		Total Benefit
20-24	-		-		-
25-29	-		-		-
30-34	-		-		-
35-39	-		-		-
40-44	1		34,451		34,451
45-49	1		45,315		45,315
50-54	1		12,153		12,153
55-59	13		13,752		178,776
60-64	9		25,475		229,274
65-69	16		26,073		417,164
70-74	14		17,464		244,491
75-79	12		23,670		284,035
80+	43		12,825		551,484
TOTAL	**110**	**$**	**18,156**	**$**	**1,997,142**



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)	$1,073,229	13.1%
Employees Contribution	$735,236	8.9%
Net Normal Cost (NNC)	$337,993	4.1%
Adjusted to Beginning of Fiscal Year 2016	$21,774	
Administrative Expense	$102,766	1.2%
Adjusted Net Normal Cost With Admin. Expense	$462,533	

*Payroll paid in 2013 for employees as of January 1, 2014 is $8,222,037. 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			$	20,688,934	19.5%
Superannuation	$	18,866,794			
Death	$	508,308			
Disability	$	1,084,503			
Withdrawal	$	229,329			
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			$	19,364,576	9.7%
Retirees and Beneficiaries	$	15,722,551			
Disabled	$	3,300,272			
Inactive	$	341,753			
Total Actuarial Accrued Liability (AAL)			$	40,053,510	14.6%
Actuarial Value of Assets (AVA)			$	25,886,903	19.0%
Unfunded Actuarial Accrued Liability			$	14,166,607	7.3%
Funded Ratio (AVA / AAL)					
2014 (8.00% interest rate):		65%			
2012 (8.00% interest rate):		62%			

- 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.

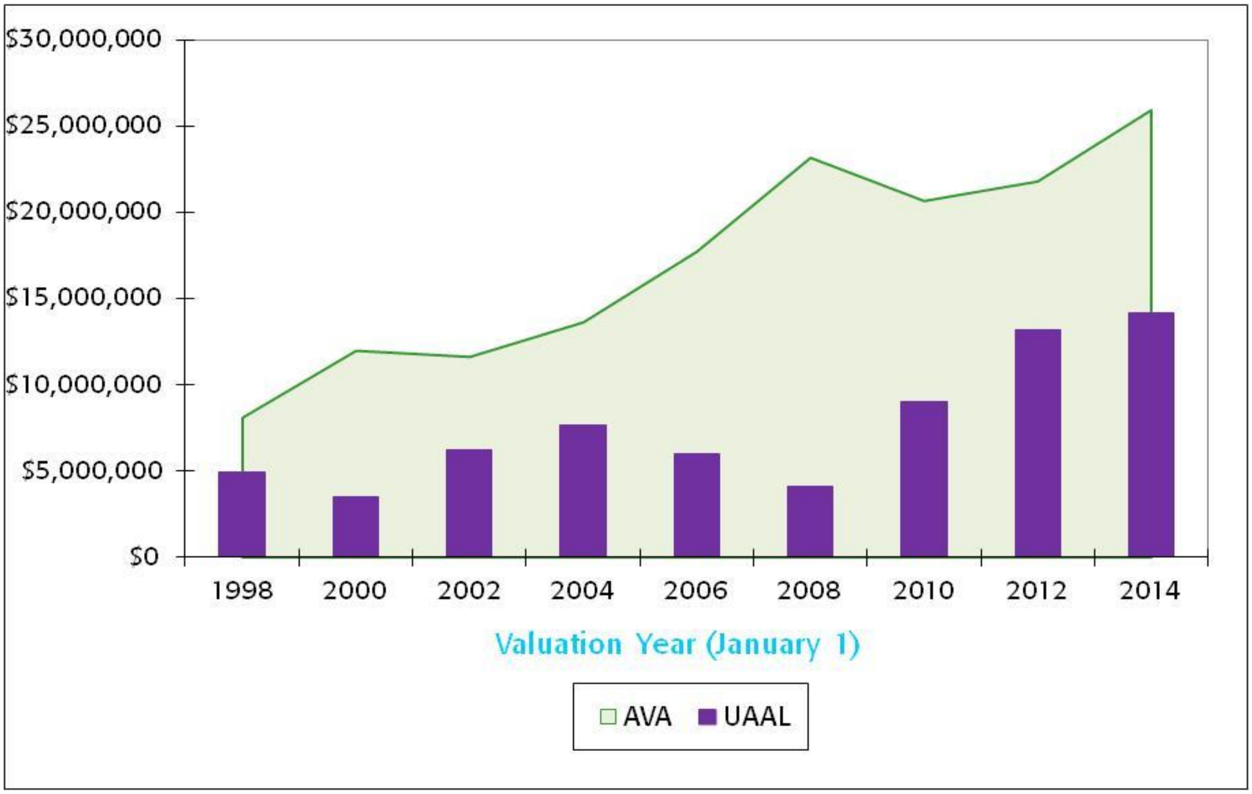
- The total AAL is $40,053,510. This along with an actuarial value of assets of $25,886,903 produces a funded status of 65% (52% funded status using market value of assets). This compares to a funded status of 62% for the 2012 valuation.

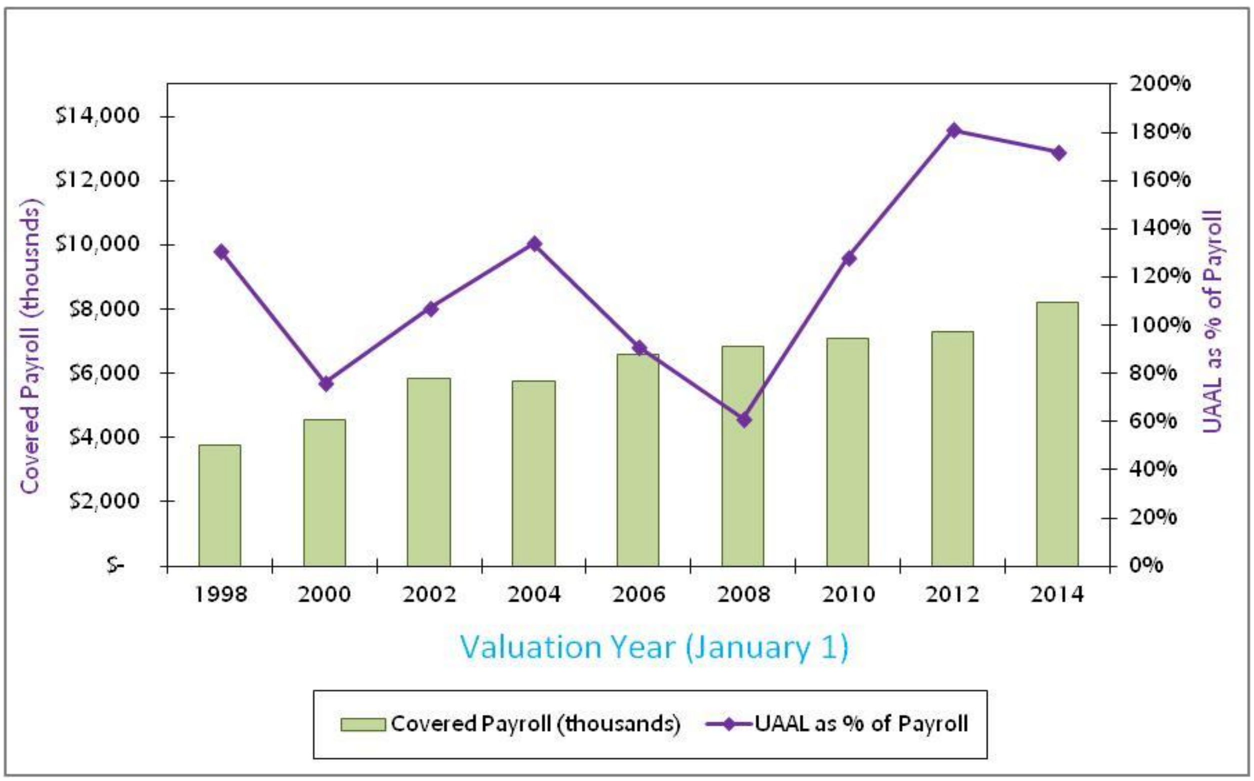
The charts on the following page are:

- History of the unfunded actuarial accrued liability (UAAL) and the valuation assets (AVA) over the course of the past nine actuarial valuations

- History of the UAAL as a % of covered payroll and the amount of covered payroll

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





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Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2016 (including admin. expenses)	462,533
Net 3(8)(c) Payments	46,181
Amortization	962,663
Total Appropriation required for Fiscal 2016	1,471,377

- 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 at the beginning of the fiscal year. The 3(8)(c) payments are the amount that the Northbridge 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 Northbridge Retirement System paid out minus what was received by the System.

- The contribution amount for Fiscal 2016 is $1,471,377. The funding schedule is presented on page 11. The schedule's length is twenty-three (23) years which is three years longer than the remainder of the 22 year schedule from the January 1, 2012 valuation. 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 increases by 4.00% annually.

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution
2016	462,533	15,081,053	962,663	46,181	1,471,377
2017	482,191	15,247,862	1,001,169	46,181	1,529,541
2018	502,684	15,386,427	1,041,216	46,181	1,590,081
2019	524,048	15,492,828	1,082,865	46,181	1,653,094
2020	546,320	15,562,760	1,126,180	46,181	1,718,680
2021	569,538	15,591,507	1,171,227	46,181	1,786,946
2022	593,744	15,573,903	1,218,076	46,181	1,858,001
2023	618,978	15,504,293	1,266,799	46,181	1,931,958
2024	645,284	15,376,494	1,317,471	46,181	2,008,936
2025	672,709	15,183,745	1,370,170	46,181	2,089,060
2026	701,299	14,918,662	1,424,976	46,181	2,172,457
2027	731,104	14,573,180	1,481,975	46,181	2,259,261
2028	762,176	14,138,501	1,541,254	46,181	2,349,612
2029	794,569	13,605,026	1,602,905	46,181	2,443,654
2030	828,338	12,962,292	1,667,021	46,181	2,541,540
2031	863,542	12,198,893	1,733,702	46,181	2,643,425
2032	900,243	11,302,406	1,803,050	46,181	2,749,474
2033	938,503	10,259,305	1,875,172	46,181	2,859,856
2034	978,390	9,054,864	1,950,179	46,181	2,974,749
2035	1,019,971	7,673,060	2,028,186	46,181	3,094,338
2036	1,063,320	6,096,465	2,109,313	46,181	3,218,814
2037	1,108,511	4,306,124	2,193,686	46,181	3,348,378
2038	1,155,623	2,281,433	2,281,433	46,181	3,483,237
2039	1,204,737	-	-	46,181	1,250,918

Amortization of Unfunded Liability as of July 1, 2015

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2016	Fresh Start	962,663	4.00%	23	962,663	23

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 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.

Fiscal Years 2018 and 2020 deferred actuarial asset gains:
2018 : $906,624
2020 : $395,066

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	8.00% (same as prior valuation).
Salary Increase	4.00% Ultimate rate, 3.50% Ultimate while receiving the following steps and longevity: • Group 1 and 2: 5.00% for the first 5 years of service • Group 4: 4.00% for the first 4 years of service, 2.00% for years 10, 15, and 20 Ultimate rate reduced to 2.00% for 2014-2015
COLA	3% of $14,000
COLA Frequency	Granted every year
Mortality	RP-2000 table (sex-distinct) projected using Generational Mortality and scale BB. The healthy employee table is used for actives, and the healthy annuitants table is used for retirees and beneficiaries. 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 used RP-2000 table for healthy annuitants (sex-distinct) projected with Generational Mortality and scale BB, ages set forward 2 years. (Prior valuation used RP2000 with 17 year projection.)
Overall Disability	Groups 1 and 2 33% ordinary disability 67% 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	$102,766 budget estimated for FY 2016 provided by Northbridge Retirement Board.

Assets

a.	Cash	$	5,012.80
b.	PRIT Cash		117,955.65
c.	PRIT Fund		27,029,936.37
d.	Sub-Total:	$	27,152,904.82
e.	Accounts Receivable		35,898.30
f.	Accounts Payable		(210.00)
g.	Sub-Total:	$	35,688.30
h.	Market Value of Assets [(d) + (g)]	$	27,188,593.12

- 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 $27,188,593.12.

- The asset allocation is approximately 20% fixed income, cash, receivables and payables and 80% equities. 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 11.2% for equities (Domestic, Developed Market and Emerging Market) and 3.65 to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 8.00% 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 $25,886,903 is based on a four-year smoothing method. Investment gains or losses above or below the expected rate of investment return are recognized over 4 years, 25% 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 gains. At the time of the next valuation, as of January 1, 2016, there will be $906,624 of net gains recognized. Another $395,066 will be recognized in 2018. These unrecognized net gains have not been reflected in the funding schedule shown on page 11 of this report.

Calculation of Valuation Assets as of January 1, 2014

FOUR-YEAR ASSET SMOOTHING

1. Market value of assets including receivable/payable as of 01/01/2014 — $27,188,593

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2013	$1,580,266	75%	$1,185,199
b.	2012	$1,137,360	50%	$568,680
c.	2011	($1,808,756)	25%	($452,189)
d.	2010	$1,021,255	0%	$0
e.	2009	$1,411,356	0%	$0
f.	Total			$1,301,690

3. Valuation assets without corridor as of 01/01/2014 (1. - 2.f.) — $25,886,903

4. Corridor Check
   a. 90% of Market Value — $24,469,734
   b. 110% of Market Value — $29,907,452

5. Valuation assets with corridor as of 01/01/2014 3. within Corridor — $25,886,903

6. Calculation of return on valuation assets
   a. Valuation assets as of 01/01/2012 — $21,760,036
   b. ER contribs + EE contribs - Ben Pymts - Expenses — $(384,839)
   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $4,511,706
   d. Weighted value of valuation assets — $21,510,332
   e. Return on valuation assets 6.c. / 6.d. — 21.0%
   f. Annualized return on assets — 10.0%

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	$25,887	$40,054	$14,167	65%	$8,222	172%
1/1/2012	$21,760	$34,960	$13,200	62%	$7,299	181%
1/1/2010	$20,630	$29,678	$9,049	70%	$7,084	128%
1/1/2008	$23,128	$27,276	$4,148	85%	$6,833	61%
1/1/2006	$17,702	$23,708	$6,006	75%	$6,572	91%

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	4.00% amortization increase
Remaining amortization period	23 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 4 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 $27,188,593
Actuarial assumptions:	
Investment Rate of Return	8.00% per year
Projected Salary Increases	Group 1 and 2: 5.00% first 5 years of service Group 4: 4.00% first 4 years of service, 2.00% in years 10, 15, 20 Ultimate Rate: 4.00%, 3.50% while receiving steps Ultimate rate reduced to 2.00% for 2014-2015

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:	$735,236	8.9%	of payroll
The normal cost for the employer was:	$337,993	4.1%	of payroll

The actuarial liability for active members was:	$20,688,934
The actuarial liability for retired members was (includes inactives):	$19,364,576
Total actuarial accrued liability:	$40,053,510
System assets as of that date ($27,188,593 Market Value):	$25,886,903
Unfunded actuarial accrued liability:	$14,166,607

The ratio of system's assets to total actuarial liability was:	65%

As of that date the total covered employee payroll was:	$8,222,037

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

Investment Return:	8.00% per annum
Rate of Salary Increase:	Select and ultimate rate (4.00% 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	$25,887	$40,054	$14,167	65%	$8,222	172%
1/1/2012	$21,760	$34,960	$13,200	62%	$7,299	181%
1/1/2010	$20,630	$29,678	$9,049	70%	$7,084	128%
1/1/2008	$23,128	$27,276	$4,148	85%	$6,833	61%
1/1/2006	$17,702	$23,708	$6,006	75%	$6,572	91%

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 four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and 100% for year four. 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

8.00% per year net of investment expenses.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

Select and ultimate salary assumption – 5.00% steps for groups 1 and 2 during the first 5 years of service, 4.00% steps for group 4 during the first 4 years of service and longevity increases of 2.00% in years 10, 15, and 20. Ultimate rate of 4.00%, lowered to 3.50% when receiving steps. Ultimate rate is lowered to 2.00% for 2014 and 2015.

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, and follow the following rates:

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 disability assumption:

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 33% ordinary and 67% 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 table (sex-distinct) projected with Generational Mortality and 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 67% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

The RP-2000 table for healthy annuitants (sex-distinct) projected with Generational Mortality and 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 $14,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $102,766 for the Fiscal Year 2016 excluding investment management fees and custodial fee is added to the Normal Cost.

Net 3(8)(c)

Net 3(8)(c) payments are assumed to be the same level as the past calendar year for all future years.

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 at the beginning of the fiscal year.

Total Payroll Increase

The total payroll is assumed to increase at 4.25% 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 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 (for elected and appointed members, 6 years in the event of involuntary termination).

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. 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 $14,000 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 four-year rolling period. The phase-in is 25% for year one, 50% for year two, 75% for year three and 100% for year four. 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).