January 1, 2015

Actuarial Valuation Report

Gardner Retirement Board

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October 20, 2015

Gardner Retirement Board
City Hall
95 Pleasant Street
Gardner, MA 01440

Dear Gardner Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2015 actuarial valuation of the Gardner Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices. It does not include GASB Statements Nos. 67 and 68 results as that will be presented in a separate report. 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 Gardner 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 to be level as a percentage of payroll. The contribution amount is set to increase by 4.5% each year (except in the first year where it is set to increase 6.2%. 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 fifteen years (fully funded in Fiscal 2031). The contribution increase in Fiscal 2031 is 3.83%.

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 2017 is $3,648,767 which is $6,872 higher than the anticipated contribution amount for Fiscal 2017 from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Gardner Retirement Board conducted their previous actuarial valuation effective January 1, 2014.

We believe the funding status adequately reflects the need and amount of future employer contributions. We believe the funded status does not reflect the sufficiency or insufficiency of plan assets on a termination basis since the funding status reflects future pay increases which would not be included on a termination basis and is therefore not a measure of termination benefits.

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 Gardner Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2015 for the purpose of determining the contribution requirements for Fiscal Year 2017 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2014
- 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, 2015);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

January 1, 2015 Valuation Summary

	January 1, 2015	January 1, 2014	Change
Contribution Fiscal 2017	$3,648,767	$3,641,895	$6,872
Funding Schedule Length	15 years	15 years	0 year
Funding Ratio	57%	56%	1%
Interest Rate Assumption	7.875%	8.00%	-0.125%
Salary Increase Rate Assumption	Select and 3.25% Ultimate	Same Ultimate Different select	See below

- The Fiscal Year 2017 contribution is $6,872 higher than the planned 2017 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using market value of assets.

  The System experienced a 7.46% annual return on the market value of assets versus our assumption of an 8.00% return which resulted in a $239,000 net actuarial loss. The assets are mainly invested in Pension Reserves Investment Trust (PRIT). The interest rate assumption was changed to 7.875% to reflect anticipated market performance. This change increased the actuarial accrued liability by about $1,000,000.

- The salary increase assumption is based on a similar select and ultimate table as the prior valuation. The salary increase assumption is 3.25% for all years with certain modifications. (See tables below). This change increased the actuarial accrued liability by $31,000. Total compensation changed by 6.4% over the prior valuation; however average annual compensation (compensation divided by number of active members) changed by 3.6%. This assumption is based on expected future experience as well as union contracts.

Current Assumption

	Year	Increase
Group 1	1	9.0%
	2	8.0%
	10, 15	4.25%
Group 4	1	11.4%
	2	17.0%
	5,10,15, 20, 30	4.25%

Prior Assumption

	Year	Increase
Group 1	1	9.0%
	2	8.0%
	10	4.0%
Group 4	1	11.4%
	2	17.0%
	10, 20, 30	4.0%

- The funding level of the Gardner Retirement System is 57% compared to 56% for the January 1, 2014 actuarial valuation. The funding level is estimated to be near the median of Massachusetts' Contributory Retirement Systems.

  The schedule length is fifteen (15) 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 24 years (2040). The contribution amount was calculated to be 6.20% higher than the Fiscal 2016 contribution and is scheduled to increase by 4.5% thereafter for the next 13 years. A 3.83% increase is expected in Fiscal 2031 when the amortization period ends.

- Non-economic assumptions, except as discussed, are the same as used in the January 1, 2014 actuarial valuation.

January 1, 2015 Actuarial Valuation Results

	January 1, 2015	January 1, 2014	Percentage Change
Funding			
Contribution for Fiscal 2017	$3,648,767		
Contribution for Fiscal 2017 based on current schedule		$3,641,895	0.2%
Members *			
▪ Actives			
a. Number	268	261	2.7%
b. Annual Compensation	$11,372,919	$10,685,820	6.4%
c. Average Annual Compensation	$42,436	$40,942	3.6%
d. Average Attained Age	47.5	47.7	-0.4%
e. Average Past Service	12.9	13.3	-3.0%
▪ Retired, Disabled and Beneficiaries			
a. Number	230	241	-4.6%
b. Total Benefits*	$5,090,539	5,024,259	1.3%
c. Average Benefits*	$22,133	$20,848	6.2%
d. Average Age	72.3	72.7	-0.4%
▪ Inactives			
a. Number	51	41	24.4%
Normal Cost			
a. Gross Normal Cost	$1,357,511	$1,241,619	9.3%
b. Less Expected Members' Contributions	1,019,989	945,734	7.9%
c. Normal Cost to be funded by the Municipality	$337,522	$295,885	14.1%
d. Eighteen month adjustment	17,874	15,669	14.1%
e. Administrative Expense Assumption	155,807	145,392	7.2%
f. Adjusted Normal Cost and Expense	$519,453	$456,946	13.7%

*Excluding State reimbursed COLA

	January 1, 2015	January 1, 2014	Percentage Change
Actuarial Accrued Liability as of January 1, 2015			
a. Active Members	$31,774,844	$30,254,368	5.0%
b. Inactive Members	588,416	725,697	-18.9%
c. Retired Members and Beneficiaries	50,269,541	48,629,740	3.4%
d. Total	$82,632,801	$79,609,805	3.8%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability	$82,632,801	$79,609,805	3.8%
b. Less Actuarial Value of Assets	47,085,789	44,881,790	4.9%
c. Unfunded Actuarial Accrued Liability	$35,547,012	$34,728,014	2.4%
d. Eighteen month adjustment	$1,290,631	$1,394,331	
e. Adjusted Unfunded Actuarial Accrued Liability	$36,837,643	$36,122,345	

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

- Payroll changed by 6.4% over the course of the past year. Average annual compensation changed by 3.6% 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
2015	268	47.5	12.9	$42,436
2014	261	47.7	13.3	$40,942
2013	262	47.7	13.2	$40,251
2011	254	48.2	13.4	$40,164
2008	291	48.0	13.0	$35,884
2007	296	47.3	12.3	$34,028
2006	284	47.0	12.3	$33,532
2005	296	46.7	11.7	$30,087

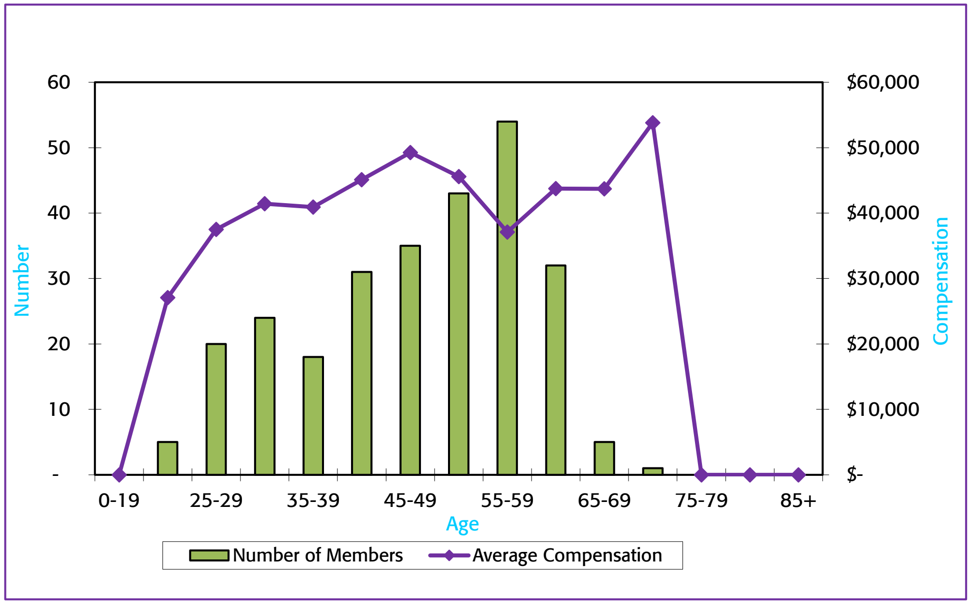
- Employee age has increased by .8 years and service has increased by 1.2 years over the past ten years. Average annual compensation has grown by 41.0% (3.5% annually) over the past ten years.

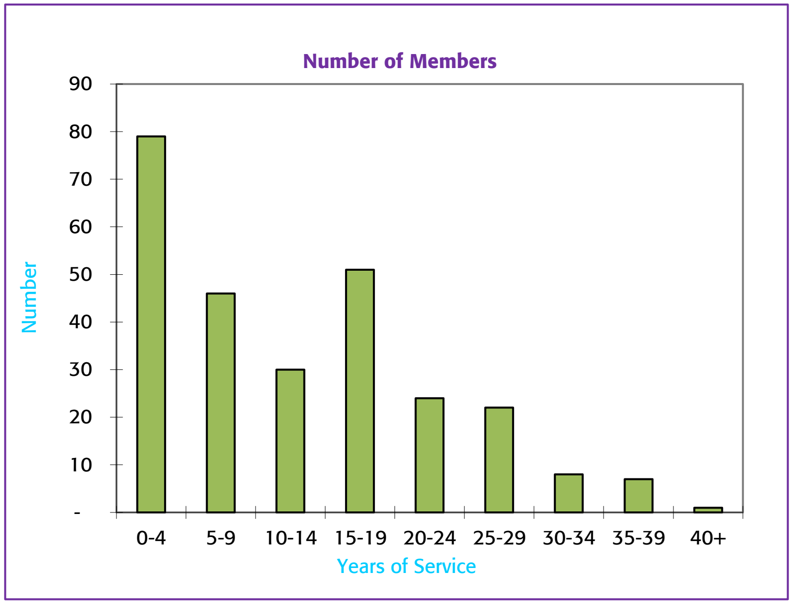
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2015

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	-	-	-	-	-	-	-	-	5	$ 135,419	$ 27,084
25-29	19	1	-	-	-	-	-	-	-	20	$ 750,137	$ 37,507
30-34	16	8	-	-	-	-	-	-	-	24	$ 994,077	$ 41,420
35-39	11	2	4	1	-	-	-	-	-	18	$ 736,606	$ 40,923
40-44	9	7	6	7	2	-	-	-	-	31	$ 1,398,495	$ 45,113
45-49	6	4	4	11	3	7	-	-	-	35	$ 1,723,288	$ 49,237
50-54	5	10	8	8	2	8	2	-	-	43	$ 1,959,947	$ 45,580
55-59	6	10	3	14	10	5	3	3	-	54	$ 2,002,703	$ 37,087
60-64	2	2	4	9	5	2	3	4	1	32	$ 1,399,943	$ 43,748
65-69	-	2	1	1	1	-	-	-	-	5	$ 218,489	$ 43,698
70-74	-	-	-	-	1	-	-	-	-	1	$ 53,815	$ 53,815
75-79	-	-	-	-	-	-	-	-	-	-	$ -	$ -
80-84	-	-	-	-	-	-	-	-	-	-	$ -	$ -
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	79	46	30	51	24	22	8	7	1	268	$ 11,372,919	$ 42,436





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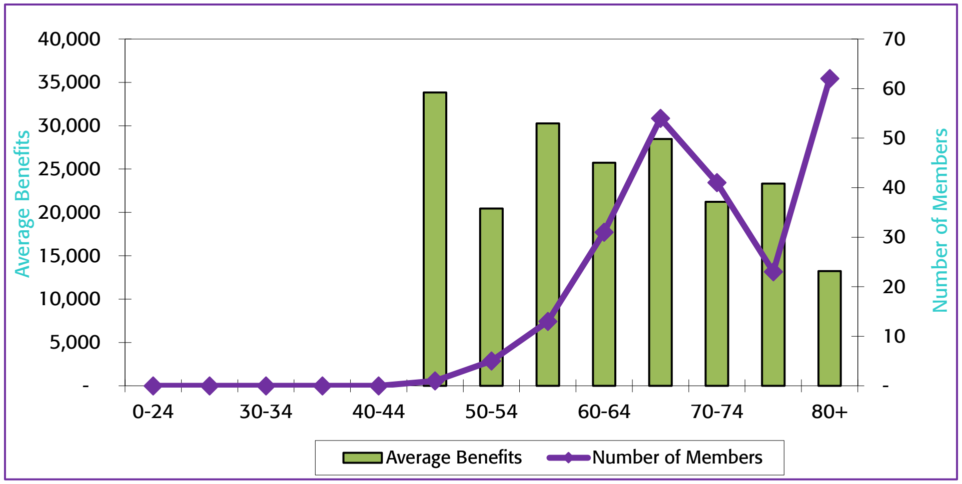
Distribution of Plan Members as of January 1, 2015

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	3	15,906	47,719
55-59	11	29,395	323,344
60-64	28	25,465	713,012
65-69	47	27,791	1,306,199
70-74	36	20,674	744,280
75-79	19	22,834	433,855
80+	58	13,025	755,464
TOTAL	**202**	**$ 21,405**	**$ 4,323,873**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	1	33,838	33,838
50-54	2	27,238	54,475
55-59	2	35,135	70,269
60-64	3	28,186	84,558
65-69	7	33,012	231,082
70-74	5	25,100	125,498
75-79	4	25,643	102,570
80+	4	16,094	64,376
TOTAL	**28**	**$ 27,381**	**$ 766,666**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	1	33,838	33,838
50-54	5	20,439	102,194
55-59	13	30,278	393,614
60-64	31	25,728	797,570
65-69	54	28,468	1,537,281
70-74	41	21,214	869,778
75-79	23	23,323	536,425
80+	62	13,223	819,840
TOTAL	**230**	**$ 22,133**	**$ 5,090,539**



Benefits shown are net of State reimbursed COLA.

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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, 2015	% of Payroll*
Gross Normal Cost (GNC)	$1,357,511	11.9%
Employees Contribution	$1,019,989	9.0%
Net Normal Cost (NNC)	$337,522	3.0%
Adjusted to Beginning of Fiscal Year 2017	$17,874	
Administrative Expense	$155,807	1.4%
Adjusted Net Normal Cost With Admin. Expense	$519,453	

*Payroll paid in 2014 for employees as of January 1, 2015 is $11,372,919. Payroll for new hires in 2014 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

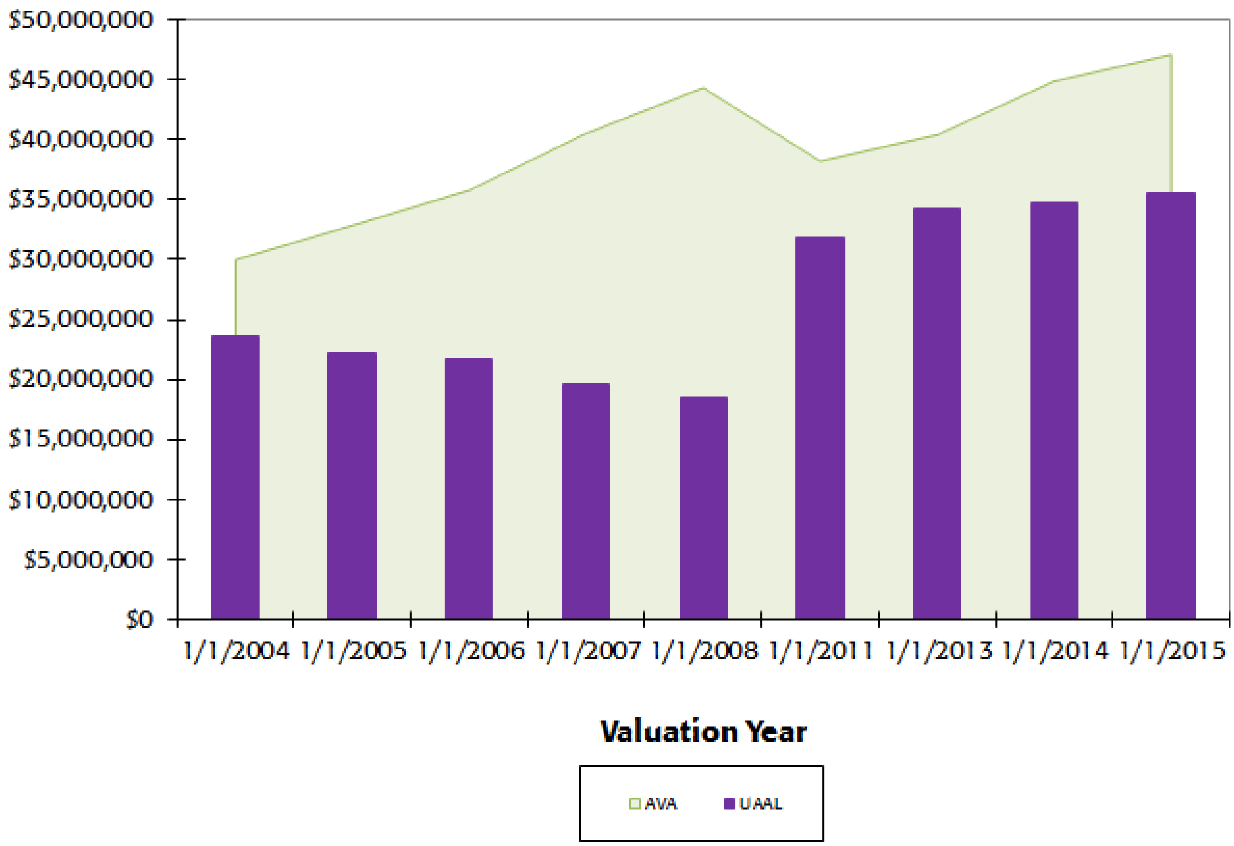
		January 1, 2015	Percentage Change
Active Actuarial Accrued Liability			
Superannuation	$29,066,516		
Death	750,571		
Disability	1,689,354		
Withdrawal	268,403		
Total		$31,774,844	5.0%
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			
Retirees and Beneficiaries	$42,111,437		
Disabled	8,158,104		
Inactive	588,416		
Total		50,857,957	3.0%
Total Actuarial Accrued Liability (AAL)		$82,632,801	3.8%
Actuarial Value of Assets (AVA)		47,085,789	4.9%
Unfunded Actuarial Accrued Liability		$35,547,012	2.4%
Funded Ratio (AVA / AAL)			
2015 (7.875% interest rate):		57%	
2014 (8.00% 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 $82,632,801. This along with an actuarial value of assets of $47,085,789 produces a funded status of 57%. This compares to a funded status of 56% for the 2014 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 nine valuations.

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



Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2017	$519,453
Net 3(8)(c) payments	155,822
Amortization	2,973,492
Total Appropriation required for Fiscal 2017	$3,648,767

- 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 in the beginning of the Fiscal Year (July 1).

- The net 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 Gardner Retirement System or other Chapter 32 Retirement Systems.

- The contribution amount for Fiscal 2017 is $3,648,767. The funding schedule is presented on page 11. The schedule's length is fifteen (15) years (for the fresh start base) which is the same as the January 1, 2014 valuation schedule's remaining length. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-four 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 contribution amount for FY 2017 is 6.2% higher than the previous year with 4.50% increases thereafter. There is a 3.83% increase in the final year.

GARDNER CONTRIBUTORY RETIREMENT SYSTEM

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution*
2017	519,453	36,837,643	2,973,492	155,822	3,648,767
2018	537,634	36,530,953	3,119,506	155,822	3,812,962
2019	556,451	36,042,598	3,272,272	155,822	3,984,545
2020	575,927	35,350,989	3,432,101	155,822	4,163,849
2021	596,084	34,432,501	3,599,317	155,822	4,351,223
2022	616,947	33,261,298	3,774,259	155,822	4,547,028
2023	638,540	31,809,143	3,957,282	155,822	4,751,644
2024	660,889	30,045,196	4,148,757	155,822	4,965,468
2025	684,020	27,935,783	4,349,072	155,822	5,188,914
2026	707,961	25,444,165	4,558,632	155,822	5,422,415
2027	732,740	22,530,268	4,777,862	155,822	5,666,424
2028	758,386	19,150,408	5,007,205	155,822	5,921,413
2029	784,929	15,256,980	5,247,125	155,822	6,187,876
2030	812,402	10,798,131	5,498,107	155,822	6,466,331
2031	840,836	5,717,400	5,717,400	155,822	6,714,057
2032	870,265	-	-	155,822	1,026,087

Amortization of Unfunded Liability as of July 1, 2016

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2017	Fresh Start	N/A	N/A	15	N/A	15

<u>Notes on Amortization of Unfunded Liability</u>

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.

*Contribution is set to be the amount resulting from a 6.2% increase on the prior year's contribution, with 4.5% increase therafter. The contribution in FY2031 increases by 3.83%. Contribution is assumed to be made on July 1st every year. If contributions are made after July 1st the contribution amount should be adjusted.

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, 2015 Valuation
Interest Rate	7.875%
Salary Increase	

	Year	Increase
Group 1	1	9.0%
	2	8.0%
	10,15	4.25%
Group 4	1	11.4%
	2	17.0%
	5, 10, 15, 20, 30	4.25%
Ultimate		3.25%

COLA	3% of $13,000
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.
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	$155,807 budget estimated for FY 2017 provided by Gardner Retirement Board.

Assets

a.	PRIT Cash	$78,838.91
b.	PRIT FUND	46,951,687.96
c.	Sub-Total:	$47,030,526.87
d.	Accounts Receivable	$278,513.75
e.	Accounts Payable	(223,252.04)
f.	Sub-Total:	$55,261.71
g.	Market Value of Assets [(c) + (f)]	$47,085,788.58

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2014 (adjusted for payables and receivables) is $47,085,788.58.

- The asset allocation as of December 31, 2014 was approximately 26% cash, receivables, payables and fixed income and 74% equities, alternative investments, hedge funds, real estate and other similar asset classes.

- 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.

Disclosure Information Under GASB Statement 25

This disclosure information is based on GASB Statement 25 prior to the issuance of GASB Statement 67. . Information with regards to GASB 67 and 68 can be found in a separate report issued by Stone Consulting, Inc. as well as Gardner's Financial Statement.

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
1/1/2015	$47,086	$82,633	$35,547	57%	$11,373	313%
1/1/2014	$44,882	$79,610	$34,728	56%	$10,686	325%
1/1/2013	$40,411	$74,709	$34,298	54%	$10,546	325%
1/1/2012*	$36,951	$72,591	$35,640	51%	$10,155	351%
1/1/2011	$38,222	$69,105	$30,883	55%	$10,202	303%

**Not used*

Notes to Schedules

Additional information as of the latest actuarial valuation follows:

Valuation date	1/1/2015
Actuarial cost method	Entry Age Normal
Amortization method	Closed - Approximate level percent of payroll
Remaining amortization period	15 years for the fresh start base
Asset valuation method	Market value of assets (adjusted by accounts payable and receivable)

Actuarial Assumptions

Investment Rate of Return	7.875% per year
Projected salary increases	Group 1 and 2: 9.0% year 1, 8.0% year 2, 4.25% year 10 & 15 Group 4: 11.4% year 1, 17.0% year 2, 4.25% years 5,10,15, 20 & 30 3.25% all other years for both groups (Years refer to years of service)

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2015

The normal cost for employees on that date was:	$1,019,989	9.0% of payroll
The normal cost for the employer was:	$337,522	3.0% of payroll

The actuarial liability for active members was:	$31,774,844
The actuarial liability for retired members was (includes inactives):	$50,857,957
Total actuarial accrued liability:	$82,632,801
System assets as of that date:	$47,085,789
Unfunded actuarial accrued liability:	$35,547,012

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

As of that date the total covered employee payroll was:	$11,372,919

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)
1/1/2015	$47,086	$82,633	$35,547	57%	$11,373	313%
1/1/2014	$44,882	$79,610	$34,728	56%	$10,686	325%
1/1/2013	$40,411	$74,709	$34,298	54%	$10,546	325%
1/1/2012*	$36,951	$72,591	$35,640	51%	$10,155	351%
1/1/2011	$38,222	$69,105	$30,883	55%	$10,202	303%

**Not used*

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).

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2017. 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. *(8.00% Prior valuation)*

Salary Increases

	Year	Increase
Group 1	1	9.0%
	2	8.0%
	10, 15	4.25%
Group 4	1	11.4%
	2	17.0%
	5,10,15, 20, 30	4.25%
Ultimate		3.25%

(Prior valuation)

	Year	Increase
Group 1	1	9.0%
	2	8.0%
	10	4.0%
Group 4	1	11.4%
	2	17.0%
	10, 20, 30	4.0%
Ultimate		3.25%

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. 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 with scale BB and Generational Mortality. 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 with scale BB and Generational Mortality set-forward by 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.

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 $155,807 for the Fiscal Year 2017 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 at the beginning of the fiscal year (July 1).

Municipality

Refers to the various employers that comprise the Retirement System.

Valuation Date

January 1, 2015.

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

1) For Group 1, 2 and 4 and hired pre-April 1, 2012: Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If a member of group 4, age 55 with no service requirement is also eligible for service retirement.

2) Hired after April 1, 2012: (Group 1 – Age 60, Group 2 – Age 55) and completion of 10 years of service. Group 4 – 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).

- 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).