

**TOWN OF STONEHAM
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2011

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Introduction

This report presents the Town of Stoneham actuarial valuation findings as of January 1, 2011, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2011.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Town of Stoneham Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2011.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, the total unfunded actuarial accrued liability decreased by 6.62% to \$26,767,937. The decrease is the result of net favorable actuarial experience during the preceding two years. The primary components of the favorable experience were an annual investment return more than the 8% assumption, fewer retirements than anticipated, more deaths than expected, and increases in salaries that were less than expected. The gains were offset by fewer terminations than anticipated. In addition, the maximum amount of pension benefit subject to a COLA was increased from \$12,000 to \$13,000. The sources of the (gain)/loss are as follows:

Investment	(810,585)
Salary	(1,205,409)
Retiree Mortality	(222,815)
Active Decrements (Termination)	204,063
Active Decrements (Disability)	(153,000)
Active Decrements (Retirement)	(180,585)
Active Decrements (Death)	20,670
New Entrants and Rehires	1,326,143
Increase in COLA Maximum Basis	414,640
Other (Data corrections, Section 3(8)(c), Service buybacks)	<u>(137,506)</u>
Total (gain)/loss	(744,384)

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which 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 terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Superannuation	\$1,244,449	\$1,248,587
Termination	128,027	105,866
Death	94,182	79,458
Disability	261,123	276,559
Administrative Expenses	<u>220,000</u>	<u>220,000</u>
Total Normal Cost	1,947,781	1,930,470
% of Pay	16.5%	15.6%
Employee Contributions	939,121	1,020,441
% of Pay	8.0%	8.2%
Employer Normal Cost	\$1,008,660	\$910,029
% of Pay	8.5%	7.3%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Actives		
Superannuations	\$28,340,257	\$31,800,165
Termination	377,092	393,957
Death	775,564	853,197
Disability	1,734,276	2,116,313
Retirees and Inactives		
Retirees and Beneficiaries	43,914,504	47,365,443
Terminated (Refund)	953,334	664,304
Disabled	<u>7,105,964</u>	<u>7,326,265</u>
Total	\$83,200,991	\$90,519,644

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Actives		
Superannuation	\$37,568,988	\$43,088,033
Termination	852,701	819,184
Death	1,376,229	1,506,032
Disability	4,171,291	5,120,110
Retirees and Inactives		
Retirees and Beneficiaries	43,914,504	47,365,443
Terminated (Refund)	953,334	664,304
Disabled	<u>7,105,964</u>	<u>7,326,265</u>
Total	\$95,943,011	\$105,889,371

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Cash equivalents	\$1,242,161	\$253,715
Short term investments	0	0
Fixed income securities	0	0
Equities	44,208,499	56,313,236
International	0	0
Real Estate	0	0
Venture Capital	0	0
Other	0	0
Accounts receivable	5,387	2,050,753
Accounts payable	(10,681)	(18,921)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$45,445,367	\$58,599,431
Total Actuarial Value	\$54,534,440	\$63,751,707

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the actuarial value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2011 is presented in Table V.

Table V

	<u>January 1, 2011</u>
(1) Market value at January 1, 2010	\$53,389,656
(2) 2010 Contributions	\$5,696,459
(3) 2010 Benefit Payments	(\$7,101,764)
(4) Net interest adjustment at 8% on (1), (2), and (3) to December 31, 2010	\$4,214,960
(5) Expected market value on January 1, 2011	\$56,199,311
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2011	\$58,599,431
(7) 2010 (Gain) / Loss	(\$2,400,120)
(8) 80% of 2010 (Gain) / Loss	(\$1,920,096)
(9) 2009 (Gain) / Loss	(\$3,874,355)
(10) 60% of 2009 (Gain) / Loss	(\$2,324,613)
(11) 2008 (Gain) / Loss	\$24,472,743
(12) 40% of 2008 (Gain) / Loss	\$9,789,097
(13) 2007 (Gain) / Loss	(\$1,960,561)
(14) 20% of 2007 (Gain) / Loss	(\$392,112)
(15) Actuarial value on January 1, 2011, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$63,751,707
Ratio of actuarial value to market value	108.79%
2010 Market Value Return on investments	12.56%
2010 Actuarial Value Return on investments	2.82%
2009 Market Value Return on investments	16.49%
2009 Actuarial Value Return on investments	15.41%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Actuarial Accrued Liability	\$83,200,991	\$90,519,644
Actuarial Assets	<u>54,534,440</u>	<u>63,751,707</u>
Unfunded Actuarial Accrued Liability	\$28,666,551	\$26,767,937
Funded Status	65.5%	70.4%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued liability by June 30, 2023
 \$ 26,053,348 over 12 years with 3.5% increasing payments
- Increasing amortization of the 2002 Early Retirement Incentives by June 30, 2020
 \$ 714,589 over 9 years with 3.5% increasing payments
- Interest adjustment for payments contributed monthly over fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
Normal cost	\$1,008,660	\$910,029
Amortization payment of the prior accrued liability	2,588,086	2,714,339
Amortization payment of 2002 ERI liability	87,347	93,568
Total cost	\$3,684,093	\$3,717,936
% of Pay	31.2%	30.0%
Fiscal 2012 cost	\$4,251,178	\$4,251,178
Fiscal 2013 cost	\$4,390,971	\$4,251,178

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2032 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 11 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total FY13 cost represents 32.8% of payroll, and is expected to decrease to 27.4% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 5.5% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast

<u>Fiscal</u> <u>Year</u> <u>Ending</u>	<u>Payroll*</u>	<u>Employee</u> <u>Contribution</u>	<u>Employer</u> <u>Normal Cost</u> <u>with Interest</u>	<u>Amortization</u> <u>Payments</u> <u>with Interest</u>	<u>Employer</u> <u>Total Cost</u> <u>with Interest</u>	<u>Employer</u> <u>Total Cost</u> <u>% of Payroll</u>	<u>Funded</u> <u>Ratio %**</u>
2012	\$12,385,617	\$1,020,441	\$979,445	\$3,271,733	\$4,251,178	34.3	70.4
2013	\$12,942,970	\$1,080,993	\$1,007,771	\$3,243,407	\$4,251,178	32.8	72.1
2014	\$13,525,403	\$1,144,929	\$1,036,663	\$3,214,515	\$4,251,178	31.4	74.0
2015	\$14,134,047	\$1,212,430	\$1,066,115	\$3,295,049	\$4,361,164	30.9	75.9
2016	\$14,770,079	\$1,283,688	\$1,096,118	\$3,410,376	\$4,506,494	30.5	77.9
2017	\$15,434,732	\$1,358,903	\$1,126,663	\$3,529,739	\$4,656,402	30.2	80.1
2018	\$16,129,295	\$1,438,289	\$1,157,737	\$3,653,280	\$4,811,017	29.8	82.4
2019	\$16,855,113	\$1,522,067	\$1,189,327	\$3,781,145	\$4,970,472	29.5	84.9
2020	\$17,613,594	\$1,610,473	\$1,221,414	\$3,913,485	\$5,134,899	29.2	87.6
2021	\$18,406,205	\$1,703,753	\$1,253,982	\$3,913,205	\$5,167,187	28.1	90.5
2022	\$19,234,484	\$1,802,167	\$1,287,007	\$4,050,168	\$5,337,175	27.7	93.5
2023	\$20,100,036	\$1,905,989	\$1,320,465	\$4,191,923	\$5,512,388	27.4	96.6
2024	\$21,004,538	\$2,015,505	\$1,354,328	\$0	\$1,354,328	6.4	100.0
2025	\$21,949,742	\$2,131,017	\$1,388,565	\$0	\$1,388,565	6.3	100.0
2026	\$22,937,481	\$2,252,845	\$1,423,141	\$0	\$1,423,141	6.2	100.0
2027	\$23,969,667	\$2,381,322	\$1,458,016	\$0	\$1,458,016	6.1	100.0
2028	\$25,048,302	\$2,516,799	\$1,493,149	\$0	\$1,493,149	6.0	100.0
2029	\$26,175,476	\$2,659,648	\$1,528,491	\$0	\$1,528,491	5.8	100.0
2030	\$27,353,372	\$2,810,256	\$1,563,990	\$0	\$1,563,990	5.7	100.0
2031	\$28,584,274	\$2,969,033	\$1,599,589	\$0	\$1,599,589	5.6	100.0
2032	\$29,870,566	\$3,136,409	\$1,635,225	\$0	\$1,635,225	5.5	100.0
2033	\$31,214,742	\$3,277,548	\$1,708,810	\$0	\$1,708,810	5.5	100.0
2034	\$32,619,405	\$3,425,038	\$1,785,706	\$0	\$1,785,706	5.5	100.0
2035	\$34,087,278	\$3,579,164	\$1,866,063	\$0	\$1,866,063	5.5	100.0
2036	\$35,621,206	\$3,740,227	\$1,950,036	\$0	\$1,950,036	5.5	100.0
2037	\$37,224,160	\$3,908,537	\$2,037,787	\$0	\$2,037,787	5.5	100.0
2038	\$38,899,247	\$4,084,421	\$2,129,488	\$0	\$2,129,488	5.5	100.0
2039	\$40,649,713	\$4,268,220	\$2,225,315	\$0	\$2,225,315	5.5	100.0
2040	\$42,478,951	\$4,460,290	\$2,325,454	\$0	\$2,325,454	5.5	100.0
2041	\$44,390,503	\$4,661,003	\$2,430,099	\$0	\$2,430,099	5.5	100.0
2042	\$46,388,076	\$4,870,748	\$2,539,454	\$0	\$2,539,454	5.5	100.0
2043	\$48,475,539	\$5,089,932	\$2,653,729	\$0	\$2,653,729	5.5	100.0

* Calendar basis

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2009</u>	<u>January 1, 2011</u>
(1) Actuarial Accrued Liability	\$83,200,991	\$90,519,644
(2) Actuarial Value of Assets	<u>54,534,440</u>	<u>63,751,707</u>
(3) Unfunded Actuarial Accrued Liability	28,666,551	26,767,937
(4) Funded Ratio (2)/(1)	65.5%	70.4%
(5) Covered Payroll	\$11,799,977	\$12,385,617
(6) UAAL as a percentage of payroll: (3)/(5)	242.9%	216.1%
(7) Annual Required Contribution (ARC)	\$3,780,504	\$4,251,178
(8) Net Pension Obligation	\$0	\$0

**PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS**

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2011.

The normal cost for employees on that date was:	\$1,020,441	8.2% of pay
The normal cost for the employer was:	690,029	5.6% of pay
The actuarial liability for active members was:		\$35,163,632
The actuarial liability for retired members was:		55,356,012
Total actuarial accrued liability:		90,519,644
System assets as of that date:		63,751,707
Unfunded actuarial accrued liability:		\$26,767,937

The ratio of system's assets to total actuarial liability was 70.4%

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

Investment Return:	8.0%
Rate of Salary Increase:	5.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/11	\$63,751,707	\$90,519,644	\$26,767,937	70.4%	\$12,385,617	216.1%
01/01/09	54,534,440	83,200,991	28,666,551	65.5%	11,799,977	242.9%
01/01/07	54,605,288	80,019,236	25,413,948	68.2%	11,577,527	219.5%
01/01/05	46,351,933	76,388,950	30,037,017	60.7%	11,669,754	257.4%
01/01/03	41,590,531	68,583,203	26,992,672	60.6%	11,290,975	239.1%
01/01/01	41,395,778	61,670,998	20,275,220	67.1%	10,805,406	187.6%
01/01/99	37,223,254	53,112,197	15,888,943	70.1%	8,651,911	183.6%
01/01/97	28,596,379	43,592,842	14,996,463	65.6%	8,812,708	170.2%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2011

Attained Age	Average Salary	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
20-24	8	0	0	0	0	0	0	0	0	0	8
	27,619	0	0	0	0	0	0	0	0	0	27,619
25-29	17	2	0	0	0	0	0	0	0	0	19
	40,138	58,770	0	0	0	0	0	0	0	0	42,099
30-34	6	8	2	0	0	0	0	0	0	0	16
	37,624	57,851	60,676	0	0	0	0	0	0	0	50,619
35-39	1	10	8	1	0	0	0	0	0	0	20
	32,275	60,572	61,922	82,290	0	0	0	0	0	0	60,783
40-44	9	3	8	3	1	0	0	0	0	0	24
	23,566	42,157	56,020	73,875	86,298	0	0	0	0	0	45,610
45-49	11	11	10	2	3	2	0	0	0	0	39
	25,354	32,275	45,929	35,995	61,756	78,833	0	0	0	0	38,670
50-54	4	15	10	2	4	10	1	1	0	0	47
	29,523	33,109	38,657	30,550	60,391	79,044	46,855	57,484	0	0	46,782
55-59	2	7	8	4	4	6	5	1	0	0	37
	23,019	29,274	37,392	46,909	47,580	63,329	81,129	76,239	0	0	48,376
60-64	4	5	4	6	6	0	2	3	2	2	32
	38,545	28,424	17,828	38,498	34,814	0	44,413	57,631	127,732	0	41,396
65-69	2	1	1	0	2	9	0	2	0	0	17
	11,677	40,099	20,584	0	39,784	31,948	0	43,894	0	0	31,701
70+	0	2	0	0	2	2	1	1	1	1	9
	0	17,803	0	0	27,948	31,102	43,527	41,887	55,278	0	32,711
Total Employees	64	64	51	18	22	29	9	8	3	0	268
Average Salary	31,156	40,421	45,133	47,535	47,627	57,856	64,984	54,536	103,581	0	44,015

Retiree Distribution as of January 1, 2011

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	1	0	1	17,129	0	17,129
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	0	1	1	0	2,656	2,656
55-59	7	6	13	345,428	112,633	458,061
60-64	24	8	32	1,066,951	160,781	1,227,732
65-69	18	18	36	540,132	302,587	842,720
70-74	20	20	40	615,009	366,504	981,513
75-79	22	21	43	586,643	237,051	823,694
80-84	14	26	40	347,396	289,656	637,053
85-89	9	24	33	119,310	262,437	381,747
90-94	7	9	16	122,989	40,518	163,507
95-99	3	2	5	20,224	23,239	43,463
Total	125	135	260	3,781,212	1,798,064	5,579,276
Average (Age/Payment)	73.7	77.4	75.6	30,250	13,319	21,459
Frequency Percent	48.1%	51.9%	100.0%	67.8%	32.2%	100.0%

Disabled Retiree Distribution as of January 1, 2011

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	1	0	1	28,462	0	28,462
50-54	1	0	1	47,065	0	47,065
55-59	5	0	5	177,295	0	177,295
60-64	5	0	5	209,055	0	209,055
65-69	5	0	5	149,811	0	149,811
70-74	4	0	4	105,152	0	105,152
75-79	1	1	2	21,124	11,963	33,086
80-84	2	0	2	37,613	0	37,613
85-89	0	1	1	0	9,356	9,356
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	24	2	26	775,577	21,318	796,895
Average (Age/Payment)	66.0	82.4	67.2	32,316	10,659	30,650
Frequency Percent	92.3%	7.7%	100.0%	97.3%	2.7%	100.0%

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2011	\$7,388,110	\$1,020,441	\$4,251,178	\$4,688,140	\$2,571,649
2012	7,010,375	1,080,993	4,251,178	4,892,579	3,214,375
2013	7,197,199	1,144,929	4,251,178	5,125,751	3,324,659
2014	7,379,625	1,212,430	4,361,164	5,376,163	3,570,132
2015	7,610,855	1,283,688	4,506,494	5,646,555	3,825,882
2016	7,769,059	1,358,903	4,656,402	5,940,050	4,186,296
2017	7,969,592	1,438,289	4,811,017	6,260,488	4,540,202
2018	8,151,292	1,522,067	4,970,472	6,609,740	4,950,987
2019	8,328,088	1,610,473	5,134,899	6,991,804	5,409,088
2020	8,472,084	1,703,753	5,167,187	7,411,074	5,809,930
2021	8,618,570	1,802,167	5,337,175	7,862,510	6,383,282
2022	8,767,588	1,905,989	5,512,388	8,359,444	7,010,233
2023	8,919,183	2,015,505	1,354,328	8,896,952	3,347,601
2024	9,073,400	2,131,017	1,388,565	9,149,937	3,596,119
2025	9,230,282	2,252,845	1,423,141	9,422,389	3,868,092
2026	9,399,108	2,381,322	1,458,016	9,715,811	4,156,041
2027	9,580,421	2,516,799	1,493,149	10,031,449	4,460,976
2028	9,774,811	2,659,648	1,528,491	10,370,628	4,783,956
2029	9,982,921	2,810,256	1,563,990	10,734,755	5,126,081
2030	10,205,444	2,969,033	1,599,589	11,125,324	5,488,502
2031	10,443,133	3,136,409	1,635,225	11,543,917	5,872,418
2032	10,696,801	3,277,548	1,708,810	11,989,519	6,279,076
2033	10,967,327	3,425,038	1,785,706	12,466,351	6,709,768
2034	11,255,663	3,579,164	1,866,063	12,976,270	7,165,834
2035	11,562,835	3,740,227	1,950,036	13,521,235	7,648,663
2036	11,889,952	3,908,537	2,037,787	14,103,313	8,159,686
2037	12,238,213	4,084,421	2,129,488	14,724,679	8,700,375
2038	12,608,914	4,268,220	2,225,315	15,387,621	9,272,243
2039	13,003,452	4,460,290	2,325,454	16,094,543	9,876,836
2040	13,439,895	4,661,003	2,430,099	16,847,317	10,498,525

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2011, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) if an employee is a State Police officer (Group 3), attainment of age 50

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For Group 3 (State Police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years. In addition, for veterans (all groups) there is an additional benefit of \$15 per year for each year of service, up to a maximum of 20 years of service.

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions with interest.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$13,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2011.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 5.0% per year.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$13,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees'

Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return. The result must be within 20% of market value.

8. **Annual Rate of Withdrawal Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. **Annual Rate of Mortality**

It is assumed that both preretirement and postretirement mortality are represented by the RP-2000 Mortality Table for males and females. 80% of pre-retirement deaths are assumed to be ordinary, and 20% are assumed to be service connected. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
45	0.0000	0.0000	1.0000
46	0.0000	0.0000	1.0000
47	0.0000	0.0000	1.0000
48	0.0000	0.0000	1.0000
49	0.0000	0.0000	1.0000
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0001
30	0.0003	0.0003
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2012 is \$220,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Town of Stoneham Contributory Retirement System contributing as of January 1, 2011, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represent our best estimate of anticipated plan experience.

Buck Consultants, LLC

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 11-04086

June 2011