

**CITY OF WALTHAM
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2011

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Report Summary:**Highlights****January 1, 2010****January 1, 2011**Contributions

Funding Schedule FY 2012	\$14,133,617	\$14,133,617
Funding Schedule FY 2013	14,576,297	14,289,286

Funded Ratios

GAS No. 25	57.5%	55.8%
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Participants

Actives	847	854
Retirees and Beneficiaries	659	680
Inactives	123	112
Disabled	<u>107</u>	<u>105</u>
Total	1,736	1,751

Payroll

Payroll of Active Members	\$47,443,385	\$48,493,764
Average Payroll	56,013	56,784

Normal Cost

Employer	\$2,486,714	\$2,507,700
Employee	4,015,240	4,146,352
Administrative Expenses	<u>500,000</u>	<u>500,000</u>
Total	\$7,001,954	\$7,154,052

Actuarial Accrued Liabilities

Actives	\$119,632,161	\$126,306,329
Retirees, Beneficiaries, Disabilities and Inactives	<u>159,476,179</u>	<u>175,050,468</u>
Total	\$279,108,340	\$301,356,797

Actuarial Value of Assets160,564,692 168,017,364Unfunded Actuarial Accrued Liabilities

\$118,543,648 \$133,339,433

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2011, of Waltham Contributory 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 City of Waltham 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 year, the total unfunded actuarial accrued liability increased by 12.5% to \$133,339,433. A major cause for the increase is due to higher number of new employees than expected, resulting in a loss of approximately \$7.5 million. In addition, investment returns did not exceed expectations. The sources of the (gain)/loss are as follows:

Investment	4,816,157
Salary Increases	(1,897,305)
New Participants	7,519,913
Active - Retirements	(1,575,322)
Active - Terminations	(994,416)
Active - Mortality	442,505
Active - Disabilities	(625,036)
Inactive - Mortality and data adjustments	3,639,418
Other, including purchased service, contributions, data	<u>(390,427)</u>
Total (gain)/loss	10,935,487

Also, the cost-of-living increase base was updated from \$12,000 to \$14,000. In addition, an Early Retirement Incentive was offered for 2011. These changes lead to increases in the accrued liabilities and normal cost of \$5,539,951 and \$55,912, respectively.

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, 2010</u>	<u>January 1, 2011</u>
Superannuation	\$4,146,070	\$4,197,592
Termination	649,442	659,958
Death	301,438	315,957
Disability	1,405,004	1,480,545
Administrative Expenses	<u>\$500,000</u>	<u>\$500,000</u>
Total Normal Cost	\$7,001,954	\$7,154,052
% of Pay	14.8%	14.8%
Employee Contributions	\$4,015,240	\$4,146,352
% of Pay	8.5%	8.6%
Employer Normal Cost	\$2,986,714	\$3,007,700
% of Pay	6.3%	6.2%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. 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, 2010</u>	<u>January 1, 2011</u>
Actives		
Superannuations	\$110,036,572	\$115,418,701
Termination	(2,282,662)	(2,262,001)
Death	3,850,340	4,260,462
Disability	8,027,911	8,889,167
Retirees and Inactives		
Retirees and Beneficiaries	\$128,543,264	\$143,585,434
Terminated (Refund)	1,374,803	1,116,682
Disabled	<u>29,558,112</u>	<u>30,348,352</u>
Total	<u>\$279,108,340</u>	<u>\$301,356,797</u>

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, 2010</u>	<u>January 1, 2011</u>
Actives		
Superannuation	\$143,761,125	\$150,210,850
Termination	3,112,490	3,138,923
Death	6,291,260	6,768,570
Disability	20,825,055	22,228,457
Retirees and Inactives		
Retirees and Beneficiaries	\$128,543,264	\$143,585,434
Terminated (Refund)	1,374,803	1,116,682
Disabled	<u>29,558,112</u>	<u>30,348,352</u>
Total	<u>\$333,466,109</u>	<u>\$357,397,268</u>

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, 2010</u>	<u>January 1, 2011</u>
Cash equivalents	\$993,605	\$3,531,996
Fixed income securities	0	0
Equities	0	0
International	0	0
Real Estate	6,273,446	8,350,200
Other	9,486,321	8,813,610
PRIT Fund	117,029,821	130,357,564
Accounts receivable	26,939	89,187
Accounts payable	(6,245)	(11,138)
Accrued income	<u>23</u>	<u>279</u>
Total Market Value	\$133,803,910	\$151,131,698
Total Actuarial Value	\$160,564,692	\$168,017,364

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.25%) 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	\$133,803,910
(2) 2010 Contributions	\$19,944,217
(3) 2010 Payments	(\$20,883,240)
(4) Net interest adjustment at 8.25% on (1), (2) and (3) to December 31, 2010	\$11,000,088
(5) Expected market value on January 1, 2011	\$143,864,975
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2011	\$151,131,698
(7) 2010 (Gain) / Loss	(\$7,266,723)
(8) 80% of 2010 (Gain) / Loss	(\$5,813,378)
(9) 2009 (Gain) / Loss	(\$744,614)
(10) 60% of 2009 (Gain) / Loss	(\$446,768)
(11) 2008 (Gain) / Loss	\$58,617,427
(12) 40% of 2008 (Gain) / Loss	\$23,446,971
(13) 2007 (Gain) / Loss	(\$1,505,788)
(14) 20% of 2007 (Gain) / Loss	(\$301,158)
(15) Actuarial value on January 1, 2011, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$168,017,364
(16) Ratio of actuarial value to market value	111.17%
(17) Actuarial Value Return for 2009	9.01%
(18) Actuarial Value Return for 2010	5.24%
(19) Market Value Return for 2009	9.11%
(20) Market Value Return for 2010	13.70%

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, 2010</u>	<u>January 1, 2011</u>
Actuarial Accrued Liability	\$279,108,340	\$301,356,797
Actuarial Assets	<u>160,564,692</u>	<u>168,017,364</u>
Unfunded Actuarial Accrued Liability	\$118,543,648	\$133,339,433
Funded Status	57.5%	55.8%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2031
 \$ 124,494,366 over 20 years with 4.0% increasing payments
- Level amortization of the 2002 Early Retirement Incentive by June 30, 2018
 \$ 5,801,934 over 7 years
- Level amortization of the 2011 Early Retirement Incentive by June 30, 2021
 \$ 3,043,132 over 10 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2010</u>	<u>January 1, 2011</u>
Normal cost	\$2,986,714	\$3,007,700
Amortization payment of the accrued liability	7,196,652	8,868,435
Amortization payment of 2002 ERI liability	3,015,891	1,038,280
Amortization payment of 2011 ERI liability	<u>0</u>	<u>423,689</u>
Total cost	\$13,199,257	\$13,338,104
% of Pay	27.8%	27.5%
Fiscal 2012 cost	\$14,133,617	\$14,133,617
Fiscal 2013 cost	\$14,576,297	\$14,289,286

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 3.5% per year. The employee contribution rate is expected to increase to 10.5% by 2034 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 7 years until the 2002 ERI liabilities are paid off. After this decrease in 2019, the employer total cost will continue to increase until the unfunded liabilities are completely paid off in 2032, at which time only the normal cost will remain. The total cost for FYE 2013 represents 28.5% of payroll, decreasing to 25.5% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 4.6% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

Appropriation Forecast

Fiscal Year	Employee Payroll	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %*
2012	\$48,493,764	\$4,146,352	\$3,129,309	\$11,004,308	\$14,133,617	29.1	55.8
2013	50,191,046	4,335,955	3,192,555	11,096,731	14,289,286	28.5	57.4
2014	51,947,732	4,533,752	3,256,395	11,478,898	14,735,293	28.4	59.0
2015	53,765,903	4,740,083	3,320,793	11,877,210	15,198,003	28.3	60.6
2016	55,647,710	4,955,303	3,385,710	12,291,456	15,677,166	28.2	62.3
2017	57,595,379	5,179,781	3,451,103	12,722,271	16,173,374	28.1	64.1
2018	59,611,218	5,413,903	3,516,926	13,170,318	16,687,244	28.0	66.0
2019	61,697,610	5,658,069	3,583,129	12,556,028	16,139,157	26.2	68.0
2020	63,857,027	5,912,693	3,649,657	13,040,636	16,690,293	26.1	69.8
2021	66,092,023	6,178,211	3,716,454	13,544,629	17,261,083	26.1	71.7
2022	68,405,243	6,455,072	3,783,456	13,627,961	17,411,417	25.5	73.7
2023	70,799,427	6,743,744	3,850,594	14,173,080	18,023,674	25.5	75.7
2024	73,277,407	7,044,716	3,917,798	14,740,003	18,657,801	25.5	77.8
2025	75,842,116	7,358,495	3,984,990	15,329,603	19,314,593	25.5	80.1
2026	78,496,590	7,685,609	4,052,085	15,942,787	19,994,872	25.5	82.4
2027	81,243,971	8,026,607	4,118,995	16,580,499	20,699,494	25.5	85.0
2028	84,087,510	8,382,060	4,185,626	17,243,719	21,429,345	25.5	87.6
2029	87,030,573	8,752,562	4,251,874	17,933,467	22,185,341	25.5	90.5
2030	90,076,643	9,138,730	4,317,633	18,650,806	22,968,439	25.5	93.5
2031	93,229,325	9,541,209	4,382,786	19,396,838	23,779,624	25.5	96.6
2032	96,492,352	9,960,667	4,447,211	0	4,447,211	4.6	100.0
2033	99,869,584	10,397,798	4,510,776	0	4,510,776	4.5	100.0
2034	103,365,019	10,853,327	4,573,344	0	4,573,344	4.4	100.0
2035	106,982,795	11,233,193	4,733,411	0	4,733,411	4.4	100.0
2036	110,727,193	11,626,355	4,899,080	0	4,899,080	4.4	100.0
2037	114,602,645	12,033,278	5,070,548	0	5,070,548	4.4	100.0
2038	118,613,737	12,454,442	5,248,017	0	5,248,017	4.4	100.0
2039	122,765,218	12,890,348	5,431,698	0	5,431,698	4.4	100.0
2040	127,062,001	13,341,510	5,621,807	0	5,621,807	4.4	100.0
2041	131,509,171	13,808,463	5,818,571	0	5,818,571	4.4	100.0
2042	136,111,992	14,291,759	6,022,221	0	6,022,221	4.4	100.0
2043	140,875,911	14,791,971	6,232,998	0	6,232,998	4.4	100.0

* 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, 2010</u>	<u>January 1, 2011</u>
(1) Actuarial Accrued Liability	\$279,108,340	\$301,356,797
(2) Actuarial Value of Assets	<u>160,564,692</u>	<u>168,017,364</u>
(3) Unfunded Actuarial Accrued Liability	\$118,543,648	\$133,339,433
(4) Funded Ratio: (2)/(1)	57.5%	55.8%
(5) Covered Payroll	\$47,443,385	\$48,493,764
(6) UAAL as a percentage of payroll: (3)/(5)	249.9%	275.0%
(7) Annual Required Contribution (ARC)	\$14,106,542	\$14,133,617
(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:	\$4,146,352	8.6% of pay
The normal cost for the employer was:	2,507,700	5.2% of pay
The actuarial liability for active members was:		\$126,306,329
The actuarial liability for retired and inactive members was:		175,050,468
Total actuarial accrued liability:		301,356,797
System assets as of that date:		168,017,364
Unfunded actuarial accrued liability:		\$133,339,433

The ratio of system's assets to total actuarial liability was 55.8%

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

Investment Return:	8.25%
Rate of Salary Increase:	4.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/11	\$168,017,364	\$301,356,797	\$133,339,433	55.8%	\$48,493,764	275.0%
01/01/10	160,564,692	279,108,340	118,543,648	57.5%	47,443,385	249.9%
01/01/08	161,934,253	251,353,888	89,419,635	64.4%	45,141,147	198.1%
01/01/06	136,645,912	267,164,850	130,518,938	51.1%	43,804,722	298.0%
01/01/05	132,657,305	252,142,463	119,485,158	52.6%	42,282,485	282.6%
01/01/04	132,381,882	241,741,616	109,359,734	54.8%	40,324,076	271.2%
01/01/03	123,352,105	232,487,351	109,135,246	53.1%	38,317,908	284.8%
01/01/01	123,997,853	196,626,146	72,628,293	63.1%	38,264,636	189.8%
01/01/00	127,180,392	183,662,873	56,482,481	69.2%	35,476,982	159.2%
01/01/99	117,993,132	169,918,311	51,925,179	69.4%	31,775,381	163.4%

EXHIBITS

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
20-24		13	0	0	0	0	0	0	0	0	13
		26,336	0	0	0	0	0	0	0	0	26,336
25-29		30	10	0	0	0	0	0	0	0	40
		35,698	54,122	0	0	0	0	0	0	0	40,304
30-34		15	39	13	1	0	0	0	0	0	68
		45,757	61,866	67,969	77,810	0	0	0	0	0	59,714
35-39		12	13	39	5	0	0	0	0	0	69
		41,890	52,679	68,694	69,428	0	0	0	0	0	61,068
40-44		22	22	32	35	16	0	0	0	0	127
		30,354	51,228	63,064	67,771	75,269	0	0	0	0	58,182
45-49		28	36	25	29	50	11	0	0	0	179
		29,606	40,718	60,965	71,475	72,860	68,740	0	0	0	57,491
50-54		13	23	18	23	31	14	10	0	0	132
		34,242	36,199	48,118	55,720	70,686	78,494	87,176	0	0	57,480
55-59		19	18	17	19	9	21	22	3	0	128
		37,177	43,717	41,483	52,306	62,977	76,299	86,206	102,581	0	59,106
60-64		7	15	11	8	7	6	8	6	3	71
		33,393	41,006	51,936	44,754	32,323	62,633	82,866	79,693	84,707	53,175
65-69		2	3	3	3	5	1	0	1	2	20
		28,912	42,341	62,042	88,791	41,306	97,454	0	125,523	55,057	58,848
70+		0	0	1	3	1	0	1	0	1	7
		0	0	77,168	66,236	61,819	0	79,301	0	62,620	68,516
Total Employees		161	179	159	126	119	53	41	10	6	854
Average Salary		34,423	48,007	59,816	63,240	68,067	74,162	85,622	91,142	71,143	56,784

Retiree Distribution as of January 1, 2011

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20						
20-24						
25-29						
30-34		1	1		44,685	44,685
35-39		3	3		1,092	1,092
40-44		2	2		27,876	27,876
45-49	1	3	4	4,951	57,908	62,859
50-54	5	6	11	78,644	115,155	193,799
55-59	26	18	44	1,082,051	281,703	1,363,754
60-64	62	37	99	2,919,975	616,162	3,536,137
65-69	58	37	95	2,472,690	652,899	3,125,589
70-74	46	42	88	1,620,301	744,040	2,364,341
75-79	48	47	95	1,345,428	608,317	1,953,745
80-84	44	58	102	1,315,069	673,175	1,988,244
85-89	41	56	97	923,351	620,430	1,543,781
90-94	7	22	29	121,369	225,364	346,733
95-99	1	9	10	7,364	71,812	79,176
100+						
Total	339	341	680	11,891,193	4,740,618	16,631,811
Average (Age/Payment)	72	75	74	35,077	13,902	24,459
Frequency Percent	49.9	50.1	100.0	71.5	28.5	100.0

Disabled Retiree Distribution as of January 1, 2011

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20						
20-24						
25-29						
30-34						
35-39						
40-44	2		2	92,309		92,309
45-49	2		2	84,888		84,888
50-54	7		7	162,313		162,313
55-59	8	3	11	282,832	82,498	365,330
60-64	14		14	560,112		560,112
65-69	19	1	20	617,565	4,728	622,293
70-74	16	1	17	548,956	36,500	585,456
75-79	12		12	321,436		321,436
80-84	11		11	296,072		296,072
85-89	7	1	8	176,215	23,179	199,394
90-94						
95-99	1		1	34,386		34,386
Total	99	6	105	3,177,084	146,905	3,323,989
Average (Age/Payment)	69	65	69	32,092	24,484	31,657
Frequency Percent	94.3	5.7	100.0	95.6	4.4	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	\$20,701,934	\$4,146,352	\$14,133,617	\$13,151,242	\$10,729,277
2012	21,726,578	4,335,955	14,289,286	14,263,690	11,162,353
2013	22,588,919	4,533,752	14,735,293	15,165,322	11,845,448
2014	23,450,973	4,740,083	15,198,003	16,123,154	12,610,268
2015	24,324,364	4,955,303	15,677,166	17,144,313	13,452,418
2016	25,100,138	5,179,781	16,173,374	18,239,615	14,492,632
2017	26,021,501	5,413,903	16,687,244	19,415,597	15,495,244
2018	26,895,390	5,658,069	16,139,157	20,633,317	15,535,154
2019	27,853,824	5,912,693	16,690,293	21,895,405	16,644,568
2020	28,832,063	6,178,211	17,261,083	23,249,067	17,856,298
2021	29,847,502	6,455,072	17,411,417	24,684,256	18,703,243
2022	30,898,704	6,743,744	18,023,674	26,206,620	20,075,334
2023	31,986,928	7,044,716	18,657,801	27,841,647	21,557,236
2024	33,113,479	7,358,495	19,314,593	29,598,386	23,157,996
2025	34,279,705	7,685,609	19,994,872	31,486,633	24,887,409
2026	35,487,005	8,026,607	20,699,494	33,516,988	26,756,084
2027	36,736,825	8,382,060	21,429,345	35,700,928	28,775,508
2028	38,030,663	8,752,562	22,185,341	38,050,880	30,958,121
2029	39,370,068	9,138,730	22,968,439	40,580,293	33,317,394
2030	40,756,646	9,541,209	23,779,624	43,303,730	35,867,918
2031	42,192,058	9,960,667	4,447,211	45,421,322	17,637,142
2032	43,678,024	10,397,798	4,510,776	46,817,245	18,047,795
2033	45,216,324	10,853,327	4,573,344	48,245,087	18,455,434
2034	46,808,802	11,233,193	4,733,411	49,700,705	18,858,507
2035	48,457,365	11,626,355	4,899,080	51,187,218	19,255,288
2036	50,163,989	12,033,278	5,070,548	52,704,025	19,643,862
2037	51,930,719	12,454,442	5,248,017	54,250,364	20,022,103
2038	53,759,672	12,890,348	5,431,698	55,825,291	20,387,665
2039	55,653,039	13,341,510	5,621,807	57,427,670	20,737,948
2040	57,107,631	13,808,463	5,818,571	59,076,580	21,595,983

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 contributory retirement systems for public employees of 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	9.0% of Salary
plus	
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

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

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.

b. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated Member Contributions with credited 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 \$729.84 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 \$14,000. 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 8.25% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 4% 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 \$14,000 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 unrealized gains and losses. 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 pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females. 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>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

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	0.0010
30	0.0003	0.0030
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 plan year 2011 is \$500,000 and is anticipated to increase at 3.5% 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 City of Waltham 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.

Daniel Sherman is an Associate of the Society of Actuaries. He is a Member of the American Academy of Actuaries and meets the Qualification Standards of the Academy to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions concerning it.

Buck Consultants, LLC

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 11-4086

November 2011