

**CITY OF WALTHAM
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2023

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Report Summary:

Highlights

January 1, 2021**January 1, 2023**

Contributions

Funding Schedule FY 2024	\$22,268,268	\$22,268,268
Funding Schedule FY 2025	23,626,632	23,428,062

Funded Ratios

GAS No. 25	61.5%	67.0%
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Participants

Actives	915	915
Retirees and Beneficiaries	695	723
Inactives	160	146
Disabled	<u>101</u>	<u>95</u>
Total	1,871	1,879

Payroll

Payroll of Active Members	\$66,580,140	\$70,297,314
Average Payroll	72,765	76,828

Normal Cost

Employer	\$1,323,242	\$1,136,172
Employee	6,008,966	6,452,471
Administrative Expenses	<u>525,000</u>	<u>525,000</u>
Total	\$7,857,208	\$8,113,643

Actuarial Accrued Liabilities

Actives	\$202,140,353	\$201,979,403
Retirees, Beneficiaries, Disabilities and Inactives	<u>267,973,532</u>	<u>298,572,711</u>
Total	\$470,113,885	\$500,552,114

Actuarial Value of Assets

289,156,061 335,606,963

Unfunded Actuarial Accrued Liabilities

\$180,957,824 \$164,945,151

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2023, 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, 2023.
- 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, 2023.

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 decreased by 8.85% to \$164,945,151. The decrease is the result of net favorable actuarial experience during the preceding years and payments against the unfunded actuarial liability. The sources of actuarial (gains) and losses are as follows:

Assets	(6,473,323)
Salary Increases	5,330,239
New Participants	1,632,169
Active - Retirements	(4,100,508)
Active - Terminations	310,077
Active - Mortality	146,898
Active - Disabilities	(396,935)
Inactive - Mortality	(899,509)
Inactive - Data adjustments	3,259,270
Other, includes data adjustments, buybacks, interest on ASF	295,792
Benefit Payments	<u>841,436</u>
Total Actuarial (Gain) / Loss	(54,394)

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, 2021</u>	<u>January 1, 2023</u>
Superannuation	\$4,542,042	\$4,610,484
Termination	2,037,562	2,151,084
Death	195,894	205,467
Disability	556,710	621,608
Administrative Expenses	<u>\$525,000</u>	<u>\$525,000</u>
Total Normal Cost	\$7,857,208	\$8,113,643
% of Pay	11.8%	11.5%
Employee Contributions	\$6,008,966	\$6,452,471
% of Pay	9.0%	9.2%
Employer Normal Cost	\$1,848,242	\$1,661,172
% of Pay	2.8%	2.4%

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 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, 2021</u>	<u>January 1, 2023</u>
Actives			
Superannuations		\$201,218,378	\$200,432,972
Termination		(5,569,066)	(5,398,795)
Death		2,776,687	2,824,644
Disability		3,714,354	4,120,582
Retirees and Inactives			
Retirees and Beneficiaries		\$224,161,956	\$254,391,339
Terminated (Refund)		1,697,483	2,359,212
Disabled		<u>42,114,093</u>	<u>41,822,160</u>
Total		\$470,113,885	\$500,552,114

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, 2021</u>	<u>January 1, 2023</u>
Actives		
Superannuation	\$230,720,299	\$230,689,997
Termination	9,536,066	10,614,626
Death	4,102,239	4,228,014
Disability	7,672,324	8,652,283
Retirees and Inactives		
Retirees and Beneficiaries	\$224,161,956	\$254,391,339
Terminated (Refund)	1,697,483	2,359,212
Disabled	<u>42,114,093</u>	<u>41,822,160</u>
Total	\$520,004,460	\$552,757,631

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, 2021</u>	<u>January 1, 2023</u>
Cash equivalents	\$182,305	\$48,438
Fixed income securities	57,877,389	54,184,646
Equities	99,646,139	88,165,821
International	82,625,399	76,196,686
Real Estate	21,261,245	28,843,468
Other	25,007,188	39,101,285
PRIT Fund	20,680,614	14,708,584
Accounts receivable	4,508	15,916
Accounts payable	(124,518)	(140,265)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$307,160,269	\$301,124,579
Total Actuarial Value	\$289,156,061	\$335,606,963

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 (7.75%) 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, 2023 is presented in Table V.

Table V

	<u>January 1, 2023</u>
(1) Market value at January 1, 2022	\$349,775,240
(2) 2022 Contributions	\$28,913,552
(3) 2022 Payments	(\$33,688,799)
(4) Net interest adjustment at 7.75% on (1), (2) and (3) to December 31, 2022	\$26,922,540
(5) Expected market value on January 1, 2023	\$371,922,533
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2023	\$307,160,269
(7) 2022 (Gain) / Loss	\$64,762,264
(8) 80% of 2022 (Gain) / Loss	\$51,809,811
(9) 2021 (Gain) / Loss	(\$20,315,987)
(10) 60% of 2021 (Gain) / Loss	(\$12,189,592)
(11) 2020 (Gain) / Loss	(\$15,379,062)
(12) 40% of 2020 (Gain) / Loss	(\$6,151,625)
(13) 2019 (Gain) / Loss	(\$25,109,504)
(14) 20% of 2019 (Gain) / Loss	(\$5,021,901)
(15) Actuarial value on January 1, 2023, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$335,606,963
(16) Ratio of actuarial value to market value	109.26%
(17) Actuarial Value Return for 2021	11.39%
(18) Actuarial Value Return for 2022	6.23%
(19) Market Value Return for 2021	14.38%
(20) Market Value Return for 2022	-10.89%

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, 2021</u>	<u>January 1, 2023</u>
Actuarial Accrued Liability	\$470,113,885	\$500,552,114
Actuarial Assets	<u>289,156,061</u>	<u>335,606,963</u>
Unfunded Actuarial Accrued Liability	\$180,957,824	\$164,945,151
Funded Status	61.5%	67.0%

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, 2032
 \$ 164,945,151 over 9 years with increasing payments
- 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, 2021</u>	<u>January 1, 2023</u>
Normal cost	\$1,848,242	\$1,661,172
Amortization payment of the accrued liability	16,574,840	19,550,353
Total cost	\$18,423,082	\$21,211,525
% of Pay	27.7%	30.2%
Fiscal 2024 cost	\$22,268,268	\$22,268,268
Fiscal 2025 cost	\$23,626,632	\$23,428,062

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 2037 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 decrease during the next 8 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents about 33% of payroll, increasing to about 35% by the time the unfunded liabilities are fully paid off, leaving only a long term normal cost of 1.1% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

Appropriation Forecast

Fiscal Year	Employer Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Unfunded Liability**	Funded Ratio %**
2024	\$6,452,471	\$1,724,341	\$20,543,927	\$22,268,268	31.7	\$164,945,151	67.0
2025	6,752,250	1,707,939	21,720,123	23,428,062	32.2	156,393,377	70.1
2026	7,065,109	1,688,276	23,023,061	24,711,337	32.8	145,959,552	73.3
2027	7,391,597	1,665,145	24,404,445	26,069,590	33.4	133,372,859	76.7
2028	7,732,285	1,638,326	25,868,711	27,507,037	34.1	118,376,783	80.2
2029	8,087,765	1,607,590	27,420,834	29,028,424	34.8	100,698,564	83.9
2030	8,458,658	1,572,695	29,066,084	30,638,779	35.5	80,039,137	87.8
2031	8,845,605	1,533,389	29,476,336	31,009,725	34.7	56,070,791	91.8
2032	9,249,277	1,489,404	30,952,973	32,442,377	35.0	29,819,045	95.9
2033	9,670,370	1,440,463	0	1,440,463	1.5	(0)	100.0
2034	10,109,609	1,386,271	0	1,386,271	1.4	(0)	100.0
2035	10,567,748	1,326,521	0	1,326,521	1.3	(0)	100.0
2036	11,045,573	1,260,890	0	1,260,890	1.2	(0)	100.0
2037	11,543,901	1,189,040	0	1,189,040	1.1	(0)	100.0
2038	11,947,937	1,230,656	0	1,230,656	1.1	(0)	100.0
2039	12,366,115	1,273,729	0	1,273,729	1.1	(0)	100.0
2040	12,798,929	1,318,310	0	1,318,310	1.1	(0)	100.0
2041	13,246,891	1,364,450	0	1,364,450	1.1	0	100.0
2042	13,710,533	1,412,206	0	1,412,206	1.1	0	100.0
2043	14,190,401	1,461,633	0	1,461,633	1.1	0	100.0
2044	14,687,065	1,512,791	0	1,512,791	1.1	0	100.0
2045	15,201,113	1,565,738	0	1,565,738	1.1	0	100.0
2046	15,733,152	1,620,539	0	1,620,539	1.1	0	100.0
2047	16,283,812	1,677,258	0	1,677,258	1.1	0	100.0
2048	16,853,745	1,735,962	0	1,735,962	1.1	0	100.0
2049	17,443,626	1,796,721	0	1,796,721	1.1	0	100.0
2050	18,054,153	1,859,606	0	1,859,606	1.1	0	100.0
2051	18,686,049	1,924,692	0	1,924,692	1.1	0	100.0
2052	19,340,060	1,992,056	0	1,992,056	1.1	0	100.0
2053	20,016,962	2,061,778	0	2,061,778	1.1	0	100.0
2054	20,717,556	2,133,941	0	2,133,941	1.1	0	100.0
2055	21,442,671	2,208,628	0	2,208,628	1.1	0	100.0

** Beginning of Fiscal Year

EXHIBITS

Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2023

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	27 48,078	2 72,433	0 0	0 0	0 0	0 0	0 0	0 0	0 0	29 49,758
25-29	50 62,474	12 79,757	0 0	0 0	0 0	0 0	0 0	0 0	0 0	62 65,819
30-34	47 60,305	35 77,763	7 95,533	0 0	0 0	0 0	0 0	0 0	0 0	89 69,941
35-39	34 51,069	23 76,338	19 87,556	5 93,397	0 0	0 0	0 0	0 0	0 0	81 69,416
40-44	34 43,267	14 75,365	21 76,571	31 97,356	16 95,900	0 #DIV/0!	0 0	0 0	0 0	116 74,885
45-49	25 55,014	14 57,363	7 67,203	17 88,008	22 110,413	10 112,154	0 0	0 0	0 0	95 81,006
50-54	29 43,239	24 61,153	10 63,766	15 74,549	28 92,828	30 102,961	11 109,540	0 0	0 0	147 77,350
55-59	15 46,768	20 59,645	26 59,833	21 63,179	26 74,946	25 110,044	12 117,338	9 105,706	0 0	154 76,857
60-64	9 52,223	13 59,229	8 58,208	11 62,632	27 76,726	17 96,846	7 84,548	10 104,210	0 0	102 75,946
65-69	1 64,975	2 43,273	5 56,007	7 72,328	4 88,792	3 86,201	3 77,692	1 144,550	1 184,964	27 78,304
70+	0 0	0 0	1 68,188	3 114,030	3 100,660	3 56,547	1 38,292	1 9,378	1 169,981	13 84,581
Total Employees	271	159	104	110	126	88	34	21	2	915
Average Salary	52,876	68,898	71,326	81,486	89,206	#DIV/0!	102,241	102,256	177,472	74,230

Exhibit 2 - Retiree Distribution as of January 1, 2023

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	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	16,746	0	16,746
40-44	1	0	1	8,638	0	8,638
45-49	3	1	4	54,438	25,652	80,090
50-54	4	1	5	134,752	10,411	145,163
55-59	15	29	44	139,170	1,501,071	1,640,241
60-64	30	41	71	905,286	1,897,220	2,802,506
65-69	67	90	157	2,300,019	4,384,967	6,684,986
70-74	53	94	147	1,594,815	4,645,097	6,239,912
75-79	64	58	122	1,342,856	2,972,402	4,315,259
80-84	37	34	71	911,297	1,586,067	2,497,364
85-89	32	22	54	710,990	791,082	1,502,072
90-94	14	11	25	257,434	330,185	587,619
95+	13	8	21	257,644	278,073	535,716
Total	334	389	723	8,634,085	18,422,228	27,056,313
Average (Age/Payment)	74.69	72.56	73.54	25,851	47,358	37,422
Frequency Percent	46.2	53.8	100	31.9	68.1	100

Exhibit 3 - Disabled Retiree Distribution as of January 1, 2023

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	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	1	0	1	31,461	0	31,461
45-49	0	1	1	0	39,554	39,554
50-54	0	3	3	0	142,871	142,871
55-59	2	13	15	46,881	624,468	671,349
60-64	0	9	9	0	380,365	380,365
65-69	5	8	13	150,139	377,928	528,067
70-74	2	17	19	54,279	991,522	1,045,802
75-79	3	14	17	77,658	572,662	650,320
80-84	0	12	12	0	489,015	489,015
85-89	0	3	3	0	99,303	99,303
90-94	0	2	2	0	62,306	62,306
95-99	0	0	0	0	0	0
Total	13	82	95	360,419	3,779,994	4,140,413
Average (Age/Payment)	68.05	70.68	70.32	27,725	46,097	43,583
Frequency Percent	13.7	86.3	100	8.7	91.3	100

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
2023	\$24,171,706	\$6,452,471	\$22,268,268	\$25,881,410	\$30,430,443
2024	23,987,401	6,752,250	23,428,062	28,292,680	34,485,591
2025	24,830,703	7,065,109	24,711,337	30,977,561	37,923,304
2026	25,669,136	7,391,597	26,069,590	33,940,477	41,732,528
2027	26,564,376	7,732,285	27,507,037	37,199,818	45,874,764
2028	27,490,423	8,087,765	29,028,424	40,782,581	50,408,347
2029	28,484,719	8,458,658	30,638,779	44,717,885	55,330,603
2030	29,499,937	8,845,605	31,009,725	48,987,156	59,342,549
2031	30,587,241	9,249,277	32,442,377	53,605,432	64,709,845
2032	31,638,225	9,670,370	1,440,463	57,408,132	36,880,740
2033	32,644,802	10,109,609	1,386,271	60,233,109	39,084,187
2034	33,683,402	10,567,748	1,326,521	63,227,943	41,438,810
2035	34,755,046	11,045,573	1,260,890	66,404,330	43,955,747
2036	35,860,785	11,543,901	1,189,040	69,774,823	46,646,979
2037	37,001,703	11,947,937	1,230,656	73,348,509	49,525,399
2038	38,178,919	12,366,115	1,273,729	77,143,959	52,604,884
2039	39,393,589	12,798,929	1,318,310	81,176,715	55,900,365
2040	40,646,903	13,246,891	1,364,450	85,463,475	59,427,912
2041	41,940,093	13,710,533	1,412,206	90,022,177	63,204,823
2042	43,274,425	14,190,401	1,461,633	94,872,103	67,249,712
2043	44,651,209	14,687,065	1,512,791	100,033,973	71,582,620
2044	46,071,796	15,201,113	1,565,738	105,530,063	76,225,118
2045	47,537,579	15,733,152	1,620,539	111,384,312	81,200,424
2046	49,049,997	16,283,812	1,677,258	117,622,463	86,533,536
2047	50,610,532	16,853,745	1,735,962	124,272,193	92,251,368
2048	52,220,716	17,443,626	1,796,721	131,363,262	98,382,893
2049	53,882,128	18,054,153	1,859,606	138,927,675	104,959,306
2050	55,596,398	18,686,049	1,924,692	146,999,852	112,014,195
2051	57,365,209	19,340,060	1,992,056	155,616,815	119,583,722
2052	58,864,551	20,016,962	2,061,778	164,830,772	128,044,960

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2023, and does not take into account any subsequent changes.

1. Administration

Each of the 104 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.

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

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

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

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.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

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) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 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 for those hired prior to April 2, 2012:

<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 those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145

For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary		
	Group 1	Group 2	Group 4
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

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 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). 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 (age 60 if hired on or after April 2, 2012), 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, 2023.

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 7.75% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 3.5% 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 four-year smoothing of asset returns greater than or less than the assumed rate of return.

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	0.2080	0.1500
5	0.1020	0.1000
10	0.0650	0.0600
15	0.0417	0.0600
20	0.0400	0.0000
30	0.0000	0.0000

9. **Annual Rate of Mortality**

It is assumed that mortality for is represented by the various SOA Pub-2010 Public Retirement Plans Mortality Tables specific to the Group, Pre-retirement versus Post, Disabled and Beneficiaries, with Scale MP-2018 improvements until 2025.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0360	0.1019	0.0382
51	0.0405	0.0714	0.0351
52	0.0437	0.0562	0.0436
53	0.0366	0.0448	0.0527
54	0.0451	0.0488	0.0999
55	0.0477	0.0469	0.1110
56	0.0574	0.0518	0.1413
57	0.0632	0.0509	0.1292
58	0.0765	0.0552	0.1499
59	0.0917	0.0645	0.1679
60	0.1057	0.0774	0.1871
61	0.1224	0.1038	0.2073
62	0.1473	0.1168	0.2176
63	0.1777	0.1440	0.3338
64	0.2136	0.1708	0.5664
65	0.2615	0.1939	1.00000
66	0.2682	0.1959	1.00000
67	0.2500	0.2000	1.00000
68	0.2500	0.2000	1.00000
69	0.2500	0.2000	1.00000
70 to 76	0.2500	0.2500	1.00000
77 to 79	0.3500	0.2500	1.00000
80	1.0000	1.0000	1.00000

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0000	0.0000	0.0191
51	0.0000	0.0000	0.0176
52	0.0000	0.0000	0.0436
53	0.0000	0.0000	0.0211
54	0.0000	0.0000	0.0266
55	0.0000	0.0000	0.0370
56	0.0000	0.0000	0.1060
57	0.0000	0.0000	0.1938
58	0.0000	0.0000	0.1499
59	0.0000	0.0000	0.1119
60	0.0477	0.0469	0.0936
61	0.0574	0.0518	0.1555
62	0.0632	0.0509	0.1741
63	0.0765	0.0552	0.2670
64	0.0917	0.0645	0.4720
65	0.1057	0.0774	0.2500
66	0.1224	0.1038	0.3000
67	0.1473	0.1168	1.0000
68	0.1777	0.1440	1.0000
69	0.2136	0.1708	1.0000
70 to 76	0.2615	0.1939	1.0000
77 to 79	0.2682	0.1959	1.0000
80	0.2500	0.2000	1.0000

12. 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	0.000100	0.000500
30	0.000152	0.000967
40	0.000663	0.002500
50	0.001271	0.007634

In addition, it is assumed for the general employees that 20% of all disabilities are ordinary (80% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

13. 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.

14. 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 2023 is \$525,000 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, 2023, 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 represents our best estimate of anticipated plan experience.

The funded status measure is appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. The funded status measure is appropriate for assessing the need for or the amount of future contributions. The funded status measure would be different if the measure reflected the market value of assets rather than the actuarial value of assets.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over thirty years of performing valuations of similar complexity, Mr. Sherman is qualified by experience. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sherman Actuarial Services, LLC



Daniel W. Sherman, ASA, MAAA

June 2023