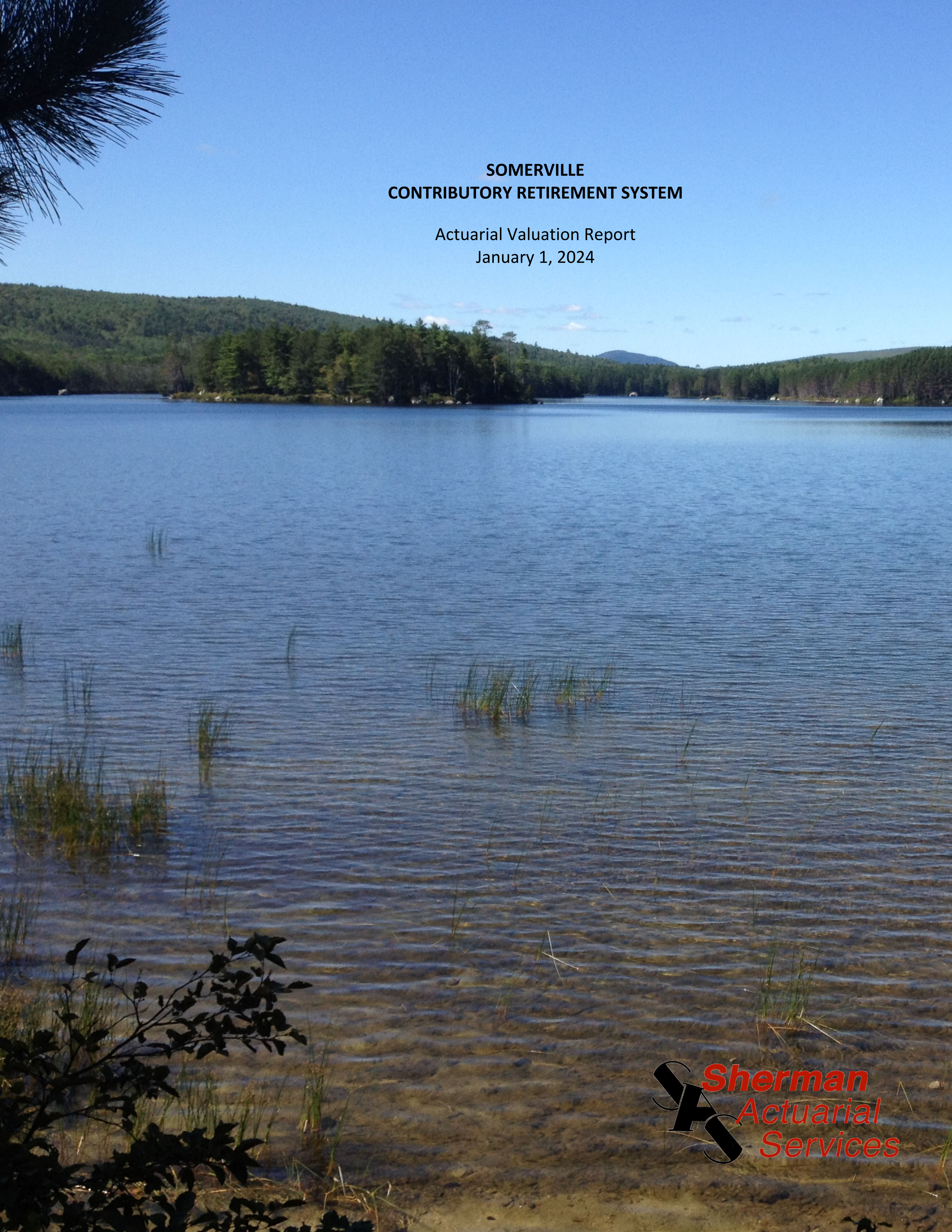
SOMERVILLE
CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report
January 1, 2024



Sherman Actuarial Services

TABLE OF CONTENTS

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Somerville/Val24/[2024 Somer Val 75pct 325SS 2_75 16k COLA v1 8pctFS.xlsm]Output

Report Summary:

Highlights	**January 1, 2023**	**January 1, 2024**
Contributions		
Funding Schedule FY 2025	$18,096,330	$18,096,330
Funding Schedule FY 2026	24,874,842	19,544,036
Funded Ratios		
GAS No. 25	70.2%	75.1%
Participants		
Actives	1,352	1,397
Retirees and Beneficiaries	826	818
Vested	0	0
Inactives	500	549
Disabled	129	124
Total	2,807	2,888
Payroll		
Payroll of Active Members	$100,793,506	$106,977,543
Average Payroll	74,551	76,577
Normal Cost		
Employer	2,042,160	2,052,493
Employee	9,284,414	9,877,130
Administrative Expenses	675,000	675,000
Total	12,001,574	12,604,623
Actuarial Accrued Liabilities		
Actives	205,447,836	208,757,591
Retirees, Beneficiaries, Disabilities and Inactives	332,542,101	349,072,761
Total	537,989,937	557,830,352
Actuarial Value of Assets	377,864,508	418,983,028
Unfunded Actuarial Accrued Liabilities	$160,125,429	$138,847,324

Introduction

The purpose of this report is to present the findings of an actuarial valuation as of January 1, 2024, of Somerville Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2024.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Somerville 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, 2024.

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 12.6% to $139,932,148. The decrease is the result of net favorable actuarial experience during the preceding year and payments against the unfunded liability. The sources of change are as follows:

Assets	(23,947,983)
Salary Increases	(5,333,452)
New Participants	1,429,022
Active - Retirements	(2,073,591)
Active - Terminations	(749,717)
Active - Mortality	(160,329)
Active - Disabilities	113,398
Inactive - Mortality	(2,931,962)
Inactive - data adjustments	16,148,444
Other	(174,806)
Benefit Payments	(2,088,084)
Total (Gain) / Loss	(19,768,775)

In addition, the assumed Salary Scale and the maximum COLA base were changed. The assumed Salary Scale increased from 3% to 3.25%. This increased the Unfunded Actuarial Liability and the Normal Cost by $3,386,424 and $778,825, respectively. The COLA base was increased from $15,000 to $16,000 during the year. This increased the Unfunded Actuarial Liability and the Normal Cost by $1,781,393 and $29,404, 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

	January 1, 2023	January 1, 2024
Superannuation	$7,178,335	$7,487,493
Termination	2,376,110	2,626,105
Death	398,254	428,007
Disability	1,373,875	1,388,018
Administrative Expenses	675,000	675,000
Total Normal Cost	12,001,574	12,604,623
% of Pay	11.9%	11.8%
Employee Contributions	9,284,414	9,877,130
% of Pay	9.2%	9.2%
Employer Normal Cost	$2,717,160	$2,727,493
% of Pay	2.7%	2.5%

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Somerville/Val24/[2024 Somer Val 75pct 325SS 2_75 16k COLA v1 8pctFS.xlsm]Output

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

	January 1, 2023	January 1, 2024
Actives		
Superannuations	$197,780,883	$201,041,212
Termination	(3,212,679)	(3,527,825)
Death	3,168,832	3,394,641
Disability	7,710,800	7,849,563
Retirees and Inactives		
Retirees and Beneficiaries	260,023,430	275,144,103
Terminated (Refund)	7,204,666	7,912,763
Disabled	65,314,005	66,015,895
Total	$537,989,937	$557,830,352

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

	January 1, 2023	January 1, 2024
Actives		
Superannuation	$253,602,639	$261,003,633
Termination	15,769,656	17,902,138
Death	6,315,583	6,845,969
Disability	19,822,376	20,387,198
Retirees and Inactives		
Retirees and Beneficiaries	260,023,430	275,144,103
Terminated (Refund)	7,204,666	7,912,763
Disabled	65,314,005	66,015,895
Total	$628,052,355	$655,211,699

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

	January 1, 2023	January 1, 2024
Cash equivalents	$15,750,041	$7,815,847
Short term investments	0	0
Fixed income securities	57,018,307	61,683,104
Equities	225,620,681	288,069,340
International	12,012,539	13,884,678
Real Estate	21,750,876	18,342,797
Venture Capital	0	0
Other	11,365,102	14,093,353
Accounts receivable	214,605	179,945
Accounts payable	(230,201)	(254,352)
Accrued income	11,239	18,562
Total Market Value	$343,513,189	$403,833,274
Total Actuarial Value	$377,864,508	$418,983,028

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 (7.5%) 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 10%. The calculation of the actuarial value of assets as of January 1, 2024 is presented in Table V.

Table V

		January 1, 2024
(1)	Market value at January 1, 2023	$343,513,189
(2)	2023 Contributions	$29,766,282
(3)	2023 Benefit Payments	($40,538,568)
(4)	Net interest adjustment at 7.5% on (1), (2), and (3) to December 31, 2023	$25,332,598
(5)	Expected market value on January 1, 2024 (1) + (2) + (3) + (4)	$358,073,501
(6)	Actual market value on January 1, 2024	$403,833,274
(7)	2023 (Gain) / Loss	($45,759,773)
(8)	80% of 2023 (Gain) / Loss	($36,607,819)
(9)	2022 (Gain) / Loss	$132,754,971
(10)	60% of 2022 (Gain) / Loss	$79,652,983
(11)	2021 (Gain) / Loss	($40,916,561)
(12)	40% of 2021 (Gain) / Loss	($16,366,625)
(13)	2020 (Gain) / Loss	($57,643,926)
(14)	20% of 2020 (Gain) / Loss	($11,528,785)
(15)	Actuarial value on January 1, 2024, (6) + (8) + (10) + (12) + (14)	$418,983,028
(16)	but not less than 90% nor greater than 110% of (6)	$418,983,028
	Ratio of actuarial value to market value	103.75%
(17)	Actuarial Value Return for 2022	-4.87%
(18)	Actuarial Value Return for 2023	13.93%
(19)	Market Value Return for 2022	-22.16%
(20)	Market Value Return for 2023	21.03%

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Somerville/Val24/[2024 Somer Val 75pct 325SS 2_75 16k COLA v1 8pctFS.xlsm]Output

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

	January 1, 2023	January 1, 2024
Actuarial Accrued Liability	$537,989,937	$557,830,352
Actuarial Assets	377,864,508	418,983,028
Unfunded Actuarial Accrued Liability	$160,125,429	$138,847,324
Funded Status	70.2%	75.1%
Market Value of Assets	343,513,189	403,833,274
Funded Status for Chapter 68 of the 2007 MGL*	70.2%	75.1%

* (Greater of Actuarial and Market Value, divided by Actuarial Accrued Liability)

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, 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, 2033
  $ 138,847,324 over 9 years with 8.00% increasing payments
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	January 1, 2023	January 1, 2024
Normal cost	$2,717,160	$2,727,493
Amortization payment of the accrued liability	20,052,472	15,142,677
Amortization payment of 2002 ERI liability	0	0
Amortization payment of 2003 ERI liability	0	0
Total cost	$22,769,632	$17,870,170
% of Pay	22.6%	16.7%
Fiscal 2025 cost	$18,096,330	$18,096,330
Fiscal 2026 cost	$24,874,842	$19,544,036

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 2036 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 8 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The initial total cost represents about 18% of payroll, increasing to about 23% until the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 2% thereafter. The decrease in the cost as a percentage of payroll is a result a Board decision to aggressively fund the obligation in the future.

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Somerville/Val24/[2024 Somer Val 75pct 325SS 2_75 16k COLA v1 8pctFS.xlsm]Approp. Results

Appropriation Forecast

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2025	$106,977,543	$9,877,130	$2,827,925	$15,268,405	$18,096,330	16.9	75.1
2026	$111,256,645	$10,389,693	$2,819,238	$16,724,798	$19,544,036	17.6	78.1
2027	$114,594,344	$10,822,386	$2,778,358	$18,329,201	$21,107,559	18.4	80.9
2028	$118,032,174	$11,271,689	$2,732,487	$20,063,677	$22,796,164	19.3	83.7
2029	$121,573,140	$11,738,211	$2,681,364	$21,466,642	$24,148,006	19.9	86.5
2030	$125,220,334	$12,222,580	$2,624,714	$23,183,973	$25,808,687	20.6	89.2
2031	$128,976,944	$12,725,446	$2,562,252	$25,038,691	$27,600,943	21.4	91.9
2032	$132,846,252	$13,247,484	$2,493,680	$27,041,786	$29,535,466	22.2	94.6
2033	$136,831,640	$13,789,391	$2,418,687	$29,205,129	$31,623,816	23.1	97.3
2034	$140,936,589	$14,351,890	$2,336,951	$0	$2,336,951	1.7	100.0
2035	$145,164,687	$14,935,729	$2,248,133	$0	$2,248,133	1.5	100.0
2036	$149,519,627	$15,541,681	$2,151,884	$0	$2,151,884	1.4	100.0
2037	$154,005,216	$16,170,548	$2,047,836	$0	$2,047,836	1.3	100.0
2038	$158,625,372	$16,655,664	$2,109,271	$0	$2,109,271	1.3	100.0
2039	$163,384,134	$17,155,334	$2,172,549	$0	$2,172,549	1.3	100.0
2040	$168,285,658	$17,669,994	$2,237,725	$0	$2,237,725	1.3	100.0
2041	$173,334,227	$18,200,094	$2,304,857	$0	$2,304,857	1.3	100.0
2042	$178,534,254	$18,746,097	$2,374,003	$0	$2,374,003	1.3	100.0
2043	$183,890,282	$19,308,480	$2,445,223	$0	$2,445,223	1.3	100.0
2044	$189,406,990	$19,887,734	$2,518,580	$0	$2,518,580	1.3	100.0
2045	$195,089,200	$20,484,366	$2,594,137	$0	$2,594,137	1.3	100.0
2046	$200,941,876	$21,098,897	$2,671,961	$0	$2,671,961	1.3	100.0
2047	$206,970,132	$21,731,864	$2,752,120	$0	$2,752,120	1.3	100.0
2048	$213,179,236	$22,383,820	$2,834,684	$0	$2,834,684	1.3	100.0
2049	$219,574,613	$23,055,334	$2,919,724	$0	$2,919,724	1.3	100.0
2050	$226,161,852	$23,746,994	$3,007,316	$0	$3,007,316	1.3	100.0
2051	$232,946,707	$24,459,404	$3,097,535	$0	$3,097,535	1.3	100.0
2052	$239,935,108	$25,193,186	$3,190,461	$0	$3,190,461	1.3	100.0
2053	$247,133,162	$25,948,982	$3,286,175	$0	$3,286,175	1.3	100.0
2054	$254,547,157	$26,727,451	$3,384,761	$0	$3,384,761	1.3	100.0
2055	$262,183,571	$27,529,275	$3,486,303	$0	$3,486,303	1.3	100.0
2056	$270,049,078	$28,355,153	$3,590,893	$0	$3,590,893	1.3	100.0

* Calendar basis

** Beginning of Fiscal Year

EXHIBITS

2

Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2024

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 0	3	0	0	0	0	0	0	0	0	3
	44,127	0	0	0	0	0	0	0	0	44,127
20-24	61	0	0	0	0	0	0	0	0	61
	48,942	0	0	0	0	0	0	0	0	48,942
25-29	130	12	0	0	0	0	0	0	0	142
	62,010	80,648	0	0	0	0	0	0	0	63,585
30-34	103	48	7	1	0	0	0	0	0	159
	70,906	82,173	83,637	0	0	0	0	0	0	75,044
35-39	74	51	40	12	0	0	0	0	0	177
	67,031	87,323	99,249	103,313	0	0	0	0	0	82,618
40-44	70	41	31	33	2	1	0	0	0	178
	65,330	69,927	101,772	92,952	62,379	0	0	0	0	77,801
45-49	63	34	15	20	20	3	0	0	0	155
	53,471	64,419	87,787	98,359	104,655	115,781	0	0	0	72,796
50-54	50	36	18	13	32	17	4	1	0	171
	57,298	67,300	63,774	80,441	101,853	104,311	100,610	58,666	0	75,877
55-59	39	30	8	23	18	25	10	9	1	163
	56,780	67,771	82,873	73,224	93,938	101,325	96,617	109,380	45,753	78,620
60-64	23	15	17	10	18	16	9	13	2	123
	61,330	71,407	68,671	54,662	68,893	80,901	88,091	118,526	131,319	75,825
65-69	7	6	4	5	13	13	3	1	1	53
	77,392	75,256	68,075	68,339	69,251	64,172	80,260	83,730	171,160	72,404
70+	1	1	0	2	2	1	2	1	2	12
	155,390	38,892	0	54,051	55,965	69,702	80,210	59,644	58,911	68,492
Total Employees	624	274	140	119	105	76	28	25	6	1,397
Average Salary	61,813	74,599	87,699	84,039	89,717	90,159	91,522	109,092	99,562	74,166

Exhibit 2 - Retiree Distribution as of January 1, 2024

	Number of Employees			Total Payments		
Attained Age	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	1	1	0	12,604	12,604
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	2	0	2	45,480	0	45,480
45-49	1	0	1	57,655	0	57,655
50-54	1	1	2	20,261	94,584	114,845
55-59	5	13	18	216,312	860,394	1,076,706
60-64	42	57	99	979,544	3,784,172	4,763,716
65-69	66	72	138	1,985,567	3,732,456	5,718,023
70-74	100	86	186	2,639,772	4,234,645	6,874,417
75-79	83	67	150	1,748,240	3,084,273	4,832,513
80-84	61	49	110	1,235,281	1,923,390	3,158,672
85-89	40	12	52	888,367	447,316	1,335,683
90-94	30	10	40	524,728	333,603	858,331
95+	17	3	20	219,149	99,558	318,707
Total	448	371	819	10,560,356	18,606,996	29,167,352
Average (Age/Payment)	76.4	72.8	74.8	23,572	50,154	35,613
Frequency Percent	54.7	45.3	100	36.2	63.8	100

Exhibit 3 - Disabled Retiree Distribution as of January 1, 2024

	Number of Employees			Total Payments		
Attained Age	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	2	0	2	106,705	0	106,705
40-44	1	0	1	44,532	0	44,532
45-49	1	0	1	38,480	0	38,480
50-54	5	1	6	340,536	24,579	365,115
55-59	7	1	8	326,484	59,116	385,600
60-64	15	0	15	904,865	0	904,865
65-69	20	4	24	1,095,693	126,339	1,222,032
70-74	27	1	28	1,474,633	60,719	1,535,352
75-79	17	1	18	894,667	16,482	911,149
80-84	10	1	11	420,296	47,436	467,731
85-89	4	0	4	134,021	0	134,021
90-94	5	0	5	123,541	0	123,541
95-99	1	0	1	0	0	0
Total	115	9	124	5,904,452	334,671	6,239,123
Average (Age/Payment)	70.70	68.60	70.60	51,343	37,186	50,316
Frequency Percent	92.7	7.3	100	94.6	5.4	100

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Somerville/Val24/[2024 Somer Val 75pct 325SS 2_75 16k COLA v1 8pctFS.xlsm]Output

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
2024	$3,935,481	$9,877,130	$18,096,330	$31,943,831	$55,981,811
2025	6,371,503	10,389,693	19,544,036	36,123,143	59,685,369
2026	8,455,359	10,822,386	21,107,559	40,599,662	64,074,248
2027	10,352,673	11,271,689	22,796,164	45,418,212	69,133,392
2028	12,208,381	11,738,211	24,148,006	50,588,790	74,266,626
2029	13,900,359	12,222,580	25,808,687	56,169,549	80,300,457
2030	15,573,903	12,725,446	27,600,943	62,209,040	86,961,525
2031	17,448,936	13,247,484	29,535,466	68,746,632	94,080,646
2032	19,549,714	13,789,391	31,623,816	75,816,244	101,679,737
2033	21,903,418	14,351,890	2,336,951	82,285,959	77,071,382
2034	24,540,497	14,935,729	2,248,133	87,981,049	80,624,414
2035	27,495,070	15,541,681	2,151,884	93,931,448	84,129,944
2036	30,805,360	16,170,548	2,047,836	100,132,211	87,545,234
2037	34,514,196	16,655,664	2,109,271	106,568,844	90,819,583
2038	38,669,560	17,155,334	2,172,549	113,234,830	93,893,153
2039	43,325,213	17,669,994	2,237,725	120,113,139	96,695,646
2040	48,541,386	18,200,094	2,304,857	127,181,227	99,144,792
2041	54,385,565	18,746,097	2,374,003	134,410,116	101,144,652
2042	60,933,358	19,308,480	2,445,223	141,763,333	102,583,678
2043	68,269,478	19,887,734	2,518,580	149,195,703	103,332,539
2044	76,488,836	20,484,366	2,594,137	156,651,978	103,241,645
2045	85,697,770	21,098,897	2,671,961	164,065,266	102,138,354
2046	96,015,421	21,731,864	2,752,120	171,355,260	99,823,823
2047	107,575,274	22,383,820	2,834,684	178,426,209	96,069,439
2048	120,526,885	23,055,334	2,919,724	185,164,628	90,612,801
2049	135,037,815	23,746,994	3,007,316	191,436,684	83,153,179
2050	151,295,800	24,459,404	3,097,535	197,085,252	73,346,391
2051	169,511,178	25,193,186	3,190,461	201,926,557	60,799,026
2052	189,919,611	25,948,982	3,286,175	205,746,388	45,061,934
2053	195,589,176	26,727,451	3,384,761	208,928,993	43,452,030

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2024, and does not take into account any subsequent changes.

1. <u>Administration</u>

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. <u>Participation</u>

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) <u>Group 1</u>: Most general employees in State and local government

(ii) <u>Group 2</u>: Certain specified hazardous duty positions

(iii) <u>Group 3</u>: State police officers and inspectors

(iv) <u>Group 4</u>: 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:

Date of Hire	Member Contribution Rate
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:

Age at	Percentage of Average Salary		
Retirement	Group 1	Group 2	Group 4
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:

Age at	Percentage of Average Salary		
Retirement	Group 1	Group 2	Group 4
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. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

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 $15,000. 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, 2024.

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 7.5% per annum, net of investment expenses. This is a reduction from the previous valuation.

5. **Salary Scale**

   It is assumed that salaries including longevity will increase at a rate of 3.25% per year. This is an increase over the previous year.

6. **Cost-of-Living Increases**

   Cost-of-living increases have been assumed to be 2.75% of the lesser of the pension amount and $16,000 per year. The previous base was $15,000.

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, with a 10% corridor.

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:

Service	General Employees	Police and Fire Employees
0	0.2080	0.0150
5	0.1020	0.0150
10	0.0650	0.0150
15	0.0417	0.0150
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:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.019964	0.1019	0.01986
51	0.019962	0.0714	0.01985
52	0.019960	0.0562	0.01985
53	0.019956	0.0448	0.04960
54	0.039908	0.0488	0.07435
55	0.039898	0.0469	0.2500
56	0.049858	0.0518	0.2000
57	0.049846	0.0509	0.2500
58	0.099660	0.0552	0.2500
59	0.129518	0.0645	0.3000
60	0.119515	0.0774	0.2500
61	0.120000	0.1038	0.2500
62	0.200000	0.1168	0.2500
63	0.200000	0.1440	0.3000
64	0.200000	0.1708	0.5000
65	0.200000	0.1939	1.00000
66	0.300000	0.1959	1.00000
67	0.300000	0.2000	1.00000
68	0.300000	0.2000	1.00000
69	0.300000	0.2000	1.00000
70 to 76	0.300000	0.2500	1.00000
77 to 79	0.350000	0.2500	1.00000
80	1.000000	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:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0477	0.0000	0.0072
51	0.0574	0.0000	0.0072
52	0.0632	0.0000	0.0062
53	0.0765	0.0000	0.0105
54	0.0917	0.0000	0.0105
55	0.1057	0.0000	0.0389
56	0.1224	0.0000	0.0631
57	0.1473	0.0000	0.0897
58	0.1777	0.0000	0.0846
59	0.2136	0.0000	0.1022
60	0.2615	0.0469	0.1455
61	0.2682	0.0518	0.1844
62	0.0477	0.0509	0.2741
63	0.0574	0.0552	0.1984
64	0.0632	0.0645	0.4139
65	0.0765	0.0774	1.0000
66	0.0917	0.1038	1.0000
67	0.1057	0.1168	1.0000
68	0.1224	0.1440	1.0000
69	0.1473	0.1708	1.0000
70	0.1777	0.1939	1.0000
71 to 76	0.2136	0.2000	1.0000
77 to 79	0.2500	0.2000	1.0000
80	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:

Attained Age	General Employees	Police and Fire Employees
20	0.0001	0.0005
30	0.0002	0.0010
40	0.0006	0.0025
50	0.0013	0.0076

In addition, it is assumed for the general employees that 40% of all disabilities are ordinary (60% 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 2023 is $675,000 and is anticipated to increase at 4% 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 projected 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 projected 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. **Actuarial 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 Somerville Retirement System contributing as of January 1, 2024, 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

Daniel W. Sherman, ASA, MAAA

November 2024