Boston Retirement System

January 1, 2025 Preliminary Actuarial Valuation Results

May 23, 2025 / Kathleen A. Riley, FSA, MAAA, EA / Andrew R. Luongo, ASA, MAAA, EA

Segal

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BRS Excluding Teachers

Participant data

The table below presents the data used in this year's valuation for the BRS excluding Teachers, in comparison to the data used in the January 1, 2024 valuation.

- The number of active participants has increased 12.0% since the prior valuation. This increase reflects 1,349 participants reported for the first time with dates of hire in 2023 or earlier.
- Average compensation has decreased 0.7% over the past year due to the additional participants.
- The number of participants in pay status has increased 0.1%.

Demographic Data	Year Ended December 31, 2024	Year Ended December 31, 2023	Change From Prior Year
Active participants:			
• Number	16,207	14,476	12.0%
• Average age	44.9	46.2	-1.3
• Average years of service	10.9	12.3	-1.4
• Average compensation	$84,574	$85,204	-0.7%
Inactive participants:			
• Inactive participants due a refund of employee contributions	11,864	10,869	9.2%
• Inactive participants with a vested right to a deferred or immediate benefit	897	934	-4.0%
Retired participants:			
• Number in pay status	6,954	6,917	0.5%
• Average age	73.7	73.6	0.1
• Average monthly benefit	$3,953	$3,832	3.2%
Disabled participants:			
• Number in pay status	1,603	1,583	1.3%
• Average age	70.3	70.2	0.1
• Average monthly benefit	$5,331	$5,133	3.9%
Beneficiaries:			
• Number in pay status	1,659	1,707	-2.8%
• Average age	75.9	76.3	-0.4
• Average monthly benefit	$2,519	$2,377	6.0%

Notes:
Compensation figures are for the prior year and reflect annualized salaries for participants hired during the year.
Calendar year 2024 compensation figures were decreased by 8.7% for Police to estimate retroactive payments made during the year.
Calendar year 2023 compensation figures were increased by 15.1% for Police to estimate unsettled contracts and TCAP impact in fiscal 2025 and decreased by 5.6% for Fire Fighters and 2.5% for school department employees to estimate retroactive payments made during the year.

Financial information

- During the plan year ending December 31, 2024, the rate of return on the market value of assets was 8.00%, compared to the assumed rate of return of 6.90%. The rate of return on the actuarial value of assets (which gradually recognizes market fluctuations) for the plan year ending December 31, 2024 was 5.99%.

- The actuarial value of assets as of December 31, 2024 was $8.20 billion, or 103.5% of the market value of assets of $7.92 billion (as reported in the Annual Statement).

  – As of December 31, 2023, the actuarial value of assets was 105.5% of the market value of assets.

- With the actuarial value of assets, there was a total unrecognized investment loss as of December 31, 2024 of $278.3 million. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience.

  – This implies that earning the assumed rate of investment return (net of expenses) on a market value basis will result in investment losses on the actuarial value of assets in the next few years.

  – The projected unfunded actuarial accrued liability in the funding schedule does not reflect the recognition of deferred investment losses.

Experience analysis

- The unfunded liability was expected to decrease by $325 million from $1,257 million as of January 1, 2024 to $932 million as of January 1, 2025. The actual unfunded liability (before consideration of assumption changes) of $977 million as of January 1, 2025 is $45 million higher than expected. The sources of the net experience loss are:

Component	Amount (In millions)
January 1, 2024 unfunded actuarial accrued liability	$1,257
January 1, 2025 expected unfunded actuarial accrued liability	932
Change due to:	
• Investment loss on an actuarial value basis	$70
• Gain due to administrative expenses less than assumed	-2
• Gain due to mortality experience (primarily beneficiaries)	-11
• Loss due to salaries increasing more than expected (primarily Police)	58
• Gain due to transfer to Teachers	-53
• Miscellaneous experience gain (retirement, turnover, disability, net of show-ups)	-17
Net loss	$45
January 1, 2025 unfunded actuarial accrued liability (before consideration of assumption changes)	**$977**

Assumptions review

Mortality assumption

- **Current assumption:**
  - Groups 1 and 2
    - Healthy: Pub-2010 General Employee, Healthy Retiree and Contingent Survivor Amount-weighted Mortality Tables set forward one year, projected generationally using Scale MP-2021
    - Disabled: Pub-2010 General Healthy Retiree Amount-weighted Mortality Tables set forward one year, projected generationally using Scale MP-2021
  - Group 4
    - Healthy: Pub-2010 Safety Employee, Healthy Retiree and Contingent Survivor Amount-weighted Mortality Tables, projected generationally using Scale MP-2021
    - Disabled: Pub-2010 Disabled Retiree Amount-weighted Mortality Tables, projected generationally using Scale MP-2021
- **Experience:**

Years	Retirees Expected	Retirees Actual	Disableds Expected	Disableds Actual	Beneficiaries Expected	Beneficiaries Actual
2016-2017	551.00	626	112.50	140	241.22	318
2018-2019	501.42	530	102.14	135	232.74	279
2020-2021	477.24	619	92.16	140	199.84	260
2022-2023	455.66	546	87.60	115	194.16	274
2024	232.72	289	45.77	57	89.91	160
9 Year Average	**246**	**290**	**49**	**65**	**106**	**143**

- **Comment:**
  - We recommend maintaining the current mortality assumption.

Investment return

- The System's investment advisor (NEPC) has calculated the following expected rates of return:
  - 30 year time horizon: 7.8%
  - 10 year time horizon: 6.7%
- Based on the current target asset allocation, Segal Marco Advisors' capital market expectations as of December 31, 2024 and a building block approach, we calculate the following expected geometric rates of return (see next page for additional detail):
  - 20 year time horizon: 6.96%
  - 15 year time horizon: 7.05%
  - 10 year time horizon: 7.16%
- After reviewing this information and the experience since the last valuation, we recommend maintaining the investment return assumption of 6.90%.

Segal Marco Advisors Capital Market Assumptions as of December 31, 2024

Arithmetic Returns by Asset Class	Domestic Equity	International Developed Markets Equity	Emerging Markets Equity	Core Fixed Income	High Yield Fixed Income	Emerging Mkt Debt Fixed Income	Core Real Estate	Hedge Fund, GTAA, Risk Parity, etc.	Private Credit	Private Equity
Nominal Expected Return as of December 31, 2024										
5 Year Time Horizon	8.82%	8.92%	10.12%	4.62%	6.22%	6.32%	6.22%	5.62%	8.82%	12.37%
10 Year Time Horizon	8.68%	8.78%	9.98%	4.48%	6.08%	6.18%	6.08%	5.48%	8.68%	12.23%
15 Year Time Horizon	8.58%	8.68%	9.88%	4.38%	5.98%	6.08%	5.98%	5.38%	8.58%	12.13%
20 Year Time Horizon	8.50%	8.60%	9.80%	4.30%	5.90%	6.00%	5.90%	5.30%	8.50%	12.05%
Target Allocation	**25.00%**	**15.00%**	**8.00%**	**18.00%**	**4.00%**	**3.00%**	**10.00%**	**5.00%**	**5.00%**	**7.00%**

Returns for Total Portfolio	(1) Forward Looking Expected Arithmetic Return	(2) Forward Looking Expected Geometric Return	(3) Median Geometric Return
Nominal Expected Return as of December 31, 2024			
5 Year Time Horizon	7.81%	7.36%	7.25%
10 Year Time Horizon	7.67%	7.16%	7.11%
15 Year Time Horizon	7.57%	7.05%	7.01%
20 Year Time Horizon	7.49%	6.96%	6.93%

Review of other assumptions

- Administrative expense assumption
  - We recommend increasing the assumption from $8,190,000 for calendar year 2024 to $10,500,000 for calendar year 2025 based on information on expenses provided by the Retirement System.
- We do not recommend any changes in the salary increase, retirement, turnover, disability or other assumptions at this time.

Summary of preliminary valuation results

The table below summarizes the results of the January 1, 2025 actuarial valuation using the recommended $10,500,000 administrative expense assumption with a comparison to the prior valuation.

Component	2025 Amount	Percent of Projected Payroll	2024 Amount	Percent of Projected Payroll
1. Total normal cost	$239,477,803	16.82%	$218,663,563	17.05%
2. Administrative expense assumption	10,500,000	0.74%	8,190,000	0.64%
3. Expected employee contributions	-145,141,556	-10.20%	-130,390,399	-10.17%
4. Employer normal cost: (1) + (2) + (3)	**$104,836,247**	**7.36%**	**$96,463,164**	**7.52%**
5. Actuarial accrued liability	$9,173,008,955		$8,879,934,968	
6. Actuarial value of assets (AVA)	8,195,838,215		7,623,038,719	
7. Unfunded actuarial accrued liability: (5) - (6)	**$977,170,740**		**$1,256,896,249**	
8. Funded percentage based on AVA: **(6) ÷ (5)**	89.35%		85.85%	
9. Market value of assets (MVA)	$7,917,574,100		$7,222,830,103	
10. Funded percentage based on MVA: **(9) ÷ (5)**	86.31%		81.34%	

Funding schedules

Funding Schedule adopted with the January 1, 2024 Valuation

With the prior valuation, the Board approved a funding schedule that fully funded the System by June 30, 2028 with appropriations that increased by approximately 8.85% per year for fiscal 2026 and fiscal 2027 and a smaller appropriation in fiscal 2028, if all assumptions are met and there are no changes in the plan of benefits or actuarial assumptions.

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of Unfunded Inactive Sheriff Liability	(4) Amortization of Remaining Unfunded Liability	(5) Actuarially Determined Contribution (ADC): (2) + (3) + (4)	(6) Unfunded Actuarial Accrued Liability (using AVA) at Beginning of Fiscal Year	(7) Percent Increase in ADC over Prior Year
2025	$98,018,157	$2,237,070	$384,116,856	$484,372,083	$1,299,535,904	- -
2026	101,547,862	2,237,070	423,454,080	527,239,012	976,191,534	8.85%
2027	105,203,998	2,237,070	466,458,597	573,899,665	588,484,910	8.85%
2028	108,991,074	2,237,070	125,817,631	237,045,775	128,054,701	-58.70%
2029	112,913,759	0	0	112,913,759	0	-52.37%
2030	116,976,887	0	0	116,976,887	0	3.60%

Notes:
Actuarially determined contribution for fiscal year 2025 is set equal to the amount determined with the prior valuation, updated to reflect the 5% COLA.
Actuarially determined contributions are assumed to be paid on July 1.
Item (2) reflects 3.25% growth in payroll and a 0.15% adjustment to total normal cost to reflect the effect of morality improvements due to the generational mortality assumption.
Projected normal cost does not reflect the future impact of pension reform for new hires.
Projected unfunded actuarial accrued liability does not reflect the recognition of deferred investment gains or losses.

January 1, 2025 Funding Schedule

This funding schedule fully funds the System by June 30, 2028 with appropriations that increase by 8.85% for fiscal 2027 and a smaller appropriation in fiscal 2028, if all assumptions are met and there are no changes in the plan of benefits or actuarial assumptions. Because there was an experience loss this year, the fiscal 2028 appropriation is larger than in last year's schedule.

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of Unfunded Inactive Sheriff Liability	(4) Amortization of Remaining Unfunded Liability	(5) Actuarially Determined Contribution (ADC): (2) + (3) + (4)	(6) Unfunded Actuarial Accrued Liability (using AVA) at Beginning of Fiscal Year	(7) Percent Increase in ADC over Prior Year
2026	$106,526,215	$2,237,070	$418,475,727	$527,239,012	$1,010,320,829	--
2027	110,365,187	2,237,070	461,297,408	573,899,665	630,290,986	8.85%
2028	114,341,758	2,237,070	176,025,637	292,604,465	178,262,707	-49.01%
2029	118,460,836	0	0	118,460,836	0	-59.52%
2030	122,727,505	0	0	122,727,505	0	3.60%

Notes:
Actuarially determined contribution for fiscal year 2026 is set equal to the amount determined with the prior valuation.
Actuarially determined contributions are assumed to be paid on July 1.
Item (2) reflects 3.25% growth in payroll and a 0.15% adjustment to total normal cost to reflect the effect of morality improvements due to the generational mortality assumption.
Projected normal cost does not reflect the future impact of pension reform for new hires.
Projected unfunded actuarial accrued liability does not reflect the recognition of deferred investment gains or losses.

January 1, 2025 Funding Schedule Using the Market Value of Assets

This schedule is provided only to illustrate the impact of the deferred investment losses. This funding schedule fully funds the System by June 30, 2028 with appropriations that increase by 8.85% for fiscal 2027 and by 8.27% in fiscal 2028, if all assumptions are met and there are no changes in the plan of benefits or actuarial assumptions. The deferred investment loss is funded in fiscal 2028.

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of Unfunded Inactive Sheriff Liability	(4) Amortization of Remaining Unfunded Liability	(5) Actuarially Determined Contribution (ADC): (2) + (3) + (4)	(6) Unfunded Actuarial Accrued Liability (using MVA) at Beginning of Fiscal Year	(7) Percent Increase in ADC over Prior Year
2026	$106,526,215	$2,237,070	$418,475,727	$527,239,012	$1,298,024,933	--
2027	110,365,187	2,237,070	461,297,408	573,899,665	937,846,673	8.85%
2028	114,341,758	2,237,070	504,802,666	621,381,494	507,039,736	8.27%
2029	118,460,836	0	0	118,460,836	0	-80.94%
2030	122,727,505	0	0	122,727,505	0	3.60%

Notes:
Actuarially determined contribution for fiscal year 2026 is set equal to the amount determined with the prior valuation.
Actuarially determined contributions are assumed to be paid on July 1.
Item (2) reflects 3.25% growth in payroll and a 0.15% adjustment to total normal cost to reflect the effect of morality improvements due to the generational mortality assumption.
Projected normal cost does not reflect the future impact of pension reform for new hires.

Cost of increasing the COLA base effective July 1, 2025

- The additional unfunded liability and employer normal cost if the COLA base is increased for Non-Teachers effective July 1, 2025 from $15,000 to $16,000, $17,000 and $18,000 is shown in the following table:

Cost element	January 1, 2025 valuation results	Increase due to change in COLA base to $16,000	Increase due to change in COLA base to $17,000	Increase due to change in COLA base to $18,000
1. July 1, 2025 projected unfunded liability	$1,010,320,829	$30,356,458	$60,391,610	$90,087,396
– Percent increase	N/A	3.0%	6.0%	8.9%
2. July 1, 2025 projected employer normal cost	$106,526,215	$737,370	$1,460,678	$2,170,347
– Percent increase	N/A	0.7%	1.4%	2.0%

- The following table shows four alternatives for reflecting in the funding schedule the additional cost of increasing the COLA base. The four alternatives amortize the unfunded liability due to increasing the COLA base over three, four, five or six years, with an initial payment in fiscal 2025 and subsequent payments increasing 8.85% each year. Some of these alternatives extend funding of the increase in the COLA base beyond the full funding of the existing unfunded liability. This approach to amortizing the unfunded liability is referred to as layered amortization.

COLA funding date	Fiscal 2026 appropriation	Increase in fiscal 2026 appropriation due to change in COLA base to $16,000	Increase in fiscal 2026 appropriation due to change in COLA base to $17,000	Increase in fiscal 2026 appropriation due to change in COLA base to $18,000
1. COLA increase funded by fiscal 2028	$527,239,012	$10,673,833	$21,228,432	$31,658,308
– Percent increase	N/A	2.0%	4.0%	6.0%
2. COLA increase funded by fiscal 2029	$527,239,012	$8,121,959	$16,151,694	$24,085,235
– Percent increase	N/A	1.5%	3.1%	4.6%
3. COLA increase funded by fiscal 2030	$527,239,012	$6,591,168	$13,106,315	$19,542,381
– Percent increase	N/A	1.3%	2.5%	3.7%
4. COLA increase funded by fiscal 2031	$527,239,012	$5,570,919	$11,076,615	$16,514,636
– Percent increase	N/A	1.1%	2.1%	3.1%

Teachers

Participant data

The table below presents the data used in this year's valuation for the Teachers, in comparison to the data used in the January 1, 2024 valuation.

- The number of active participants has increased 12.0% since the prior valuation. This increase reflects 477 participants reported for the first time with dates of hire in 2023 or earlier.
- Average compensation has decreased 0.2% over the past year due to the additional participants.
- The number of participants in pay status has increased 0.8%.

Demographic Data	Year Ended December 31, 2024	Year Ended December 31, 2023	Change From Prior Year
Active participants:			
• Number	6,760	6,035	12.0%
• Average age	42.7	43.4	-0.7
• Average years of service	11.4	12.1	-0.7
• Average compensation	$114,585	$114,791	-0.2%
Inactive participants:			
• Inactive participants due a refund of employee contributions	3,120	3,169	-1.5%
• Inactive participants with a vested right to a deferred or immediate benefit	504	548	-8.0%
Retired participants:			
• Number in pay status	4,388	4,360	0.6%
• Average age	75.5	75.0	0.5
• Average monthly benefit	$5,118	$5,034	1.7%
Disabled participants:			
• Number in pay status	104	104	0.0%
• Average age	70.7	70.4	0.3
• Average monthly benefit	$3,971	$3,708	7.1%
Beneficiaries:			
• Number in pay status	346	334	3.6%
• Average age	75.0	75.0	0.0
• Average monthly benefit	$2,461	$2,381	3.4%

Notes:
Compensation figures are for the prior calendar year and reflect annualized salaries for participants hired during the year.
Calendar year 2024 compensation figures were increased by 1% to estimate unsettled contracts.
Calendar year 2023 compensation figures decreased by 2.5% to estimate retroactive payments made during the year.

Financial information

- During the plan year ending December 31, 2024, the rate of return on the market value of assets was 8.78%, compared to the assumed rate of return of 7.00%. The rate of return on the actuarial value of assets (which gradually recognizes market fluctuations) for the plan year ending December 31, 2024 was 7.06%.
- The actuarial value of assets as of December 31, 2024 was $2.61 billion, or 99.8% of the market value of assets of $2.62 billion (as reported in the Annual Statement).
  - As of December 31, 2023, the actuarial value of assets was 101.4% of the market value of assets.
- With the actuarial value of assets, there was a total unrecognized investment gain as of December 31, 2024 of $5.7 million. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment losses derived from future experience.
  - This implies that earning the assumed rate of investment return (net of expenses) on a market value basis will result in investment gains on the actuarial value of assets in the next few years.

Experience analysis

- The unfunded liability was expected to decrease by $78 million from $2,466 million as of January 1, 2024 to $2,388 million as of January 1, 2025. The actual unfunded liability (before consideration of assumption changes) of $2,416 million as of January 1, 2025, is $28 million higher than expected. The sources of the net experience loss are:

Component	Amount (In millions)
January 1, 2024 unfunded actuarial accrued liability	$2,466
January 1, 2025 expected unfunded actuarial accrued liability	2,388
Change due to:	
• Investment gain on an actuarial value basis	-$1
• Gain due to administrative expenses less than assumed	-1
• Loss due to mortality experience	17
• Gain due to salaries increasing less than expected	-24
• Loss due to transfer from non-Teachers	53
• Miscellaneous experience gain (net of show-ups)	-16
Net loss	$28
January 1, 2025 unfunded actuarial accrued liability (before consideration of assumption changes)	**$2,416**

Assumptions review

Mortality assumption

- **Current assumption:**
  - Healthy: Pub-2010 Teacher Employee, Healthy Retiree and Contingent Survivor Headcount-weighted Mortality Tables, projected generationally using Scale MP-2021
  - Disabled: Pub-2010 Teacher Healthy Retiree Headcount-weighted Mortality Tables, projected generationally using Scale MP-2021
- **Experience:**

Years	Retirees Expected	Retirees Actual	Disableds Expected	Disableds Actual	Beneficiaries Expected	Beneficiaries Actual
2016-2017	221.26	220	9.48	6	25.06	32
2018-2019	199.18	231	9.72	13	20.86	24
2020-2021	197.68	256	5.48	12	28.92	33
2022-2023	209.12	245	4.54	15	32.20	44
2024	109.43	103	1.90	5	16.22	13
9-Year Average	**104**	**117**	**3**	**6**	**14**	**16**

- **Comment:**
  - We recommend maintaining the current mortality assumption.

Investment return

- The PRIT Fund's investment advisor (NEPC) has calculated the following expected rates of return:
  - 30 year time horizon: 8.0%
  - 10 year time horizon: 6.9%
- Based on the current target asset allocation, Segal Marco Advisors' capital market expectations as of December 31, 2024 and a building block approach, we calculate the following expected geometric rates of return (see next page for additional detail):
  - 20 year time horizon: 7.02%
  - 15 year time horizon: 7.11%
  - 10 year time horizon: 7.22%
- After reviewing this information and the experience since the last valuation, we recommend maintaining the investment return assumption of 7.00%.

Segal Marco Advisors Capital Market Assumptions as of December 31, 2024

Arithmetic Returns by Asset Class	Domestic Equity	International Developed Markets Equity	Emerging Markets Equity	Core Fixed Income	High Yield Fixed Income	Core Real Estate	Commodities	Hedge Fund, GTAA, Risk Parity, etc.	Private Equity
Nominal Expected Return as of December 31, 2024									
5 Year Time Horizon	8.82%	8.92%	10.12%	4.62%	6.22%	6.22%	6.72%	5.62%	12.37%
10 Year Time Horizon	8.68%	8.78%	9.98%	4.48%	6.08%	6.08%	6.58%	5.48%	12.23%
15 Year Time Horizon	8.58%	8.68%	9.88%	4.38%	5.98%	5.98%	6.48%	5.38%	12.13%
20 Year Time Horizon	8.50%	8.60%	9.80%	4.30%	5.90%	5.90%	6.40%	5.30%	12.05%
Target Allocation	**23.50%**	**9.00%**	**3.50%**	**15.00%**	**9.00%**	**10.00%**	**4.00%**	**10.00%**	**16.00%**

Returns for Total Portfolio	(1) Forward Looking Expected Arithmetic Return	(2) Forward Looking Expected Geometric Return	(3) Median Geometric Return
Nominal Expected Return as of December 31, 2024			
5 Year Time Horizon	7.88%	7.42%	7.30%
10 Year Time Horizon	7.74%	7.22%	7.16%
15 Year Time Horizon	7.64%	7.11%	7.07%
20 Year Time Horizon	7.57%	7.02%	6.99%

Review of other assumptions

- Administrative expense assumption
  - We recommend increasing the assumption from $3,510,000 for calendar year 2024 to $4,500,000 for calendar year 2025 based on information on expenses provided by the Retirement System.
- We do not recommend any changes in the salary increase, retirement, turnover, disability or other assumptions at this time.

Summary of preliminary valuation results

The table below summarizes the results of the January 1, 2025 actuarial valuation using an administrative expense assumption of $4,500,000 for 2025 with a comparison to the prior valuation.

Component	2025 Amount	Percent of Projected Payroll	2024 Amount	Percent of Projected Payroll
1. Total normal cost	$109,140,666	13.38%	$97,995,181	13.43%
2. Administrative expense assumption	4,500,000	0.55%	3,510,000	0.48%
3. Expected employee contributions	-88,697,003	-10.88%	-79,378,343	-10.88%
4. Employer normal cost: (1) + (2) + (3)	**$24,943,663**	**3.06%**	**$22,126,838**	**3.03%**
5. Actuarial accrued liability	$5,027,832,234		$4,863,094,136	
6. Actuarial value of assets (AVA)	2,611,856,272		2,396,714,185	
7. Unfunded actuarial accrued liability: (5) - (6)	**$2,415,975,962**		**$2,466,379,951**	
8. Funded ratio based on AVA: **(6) ÷ (5)**	51.95%		49.28%	
9. Market value of assets	$2,617,523,450		$2,363,600,554	
10. Funded ratio based on MVA: **(9) ÷ (5)**	52.06%		48.60%	

Cost of increasing the COLA base effective July 1, 2025

- The additional unfunded liability and employer normal cost if the COLA base is increased for Teachers effective July 1, 2025 from $15,000 to $16,000, $17,000 and $18,000 is shown in the following table:

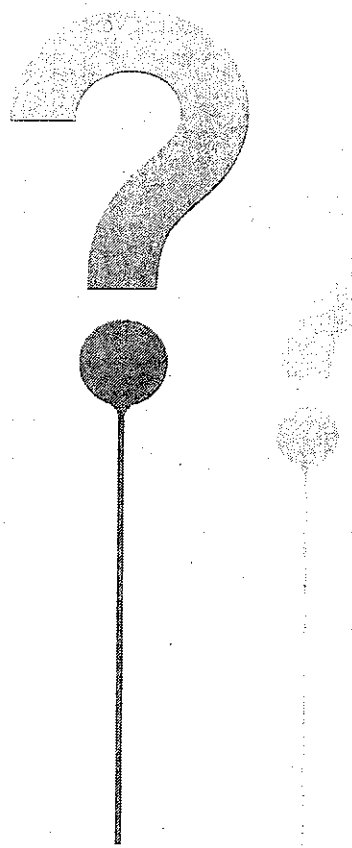
Cost element	January 1, 2025 valuation results	Increase due to change in COLA base to $16,000	Increase due to change in COLA base to $17,000	Increase due to change in COLA base to $18,000
1. July 1, 2025 projected unfunded liability	$2,499,104,969	$15,658,295	$31,290,282	$46,892,106
– Percent increase	N/A	0.6%	1.3%	1.9%
2. July 1, 2025 projected employer normal cost	$25,345,757	$279,532	$558,440	$836,606
– Percent increase	N/A	1.1%	2.2%	3.3%

Strategies to Consider When Approaching Full Funding

- When a retirement system is fully funded or approaching full funding, small experience fluctuations can result in significant changes in the employer cost because fluctuations may be large relative to the remaining unfunded liability and the number of years remaining on the funding schedule may be small.
- The Board may want to lower the investment return assumption to increase the likelihood of achieving the assumption, assuming no change in the System's asset allocation.
- To provide a buffer for employer contributions once the System is fully funded, you may consider funding more than 100% of the actuarial accrued liabilities, e.g. 105% of the actuarial accrued liabilities.
- Another approach to consider for mitigating contribution volatility is a layered amortization approach. With layered amortization, changes in the unfunded liability due to experience gains or losses, changes in assumptions, or a change in the plan of benefits are identified and then amortized over a fixed time period. The amortization period could be as long as 10 to 15 years and the amortization payments can be level dollar payments or payments that are level as a percentage of payroll.
- MGL Chapter 32 currently requires the unfunded liability to be fully amortized in 15 years, by June 30, 2040. As we get closer to that date, MGL Chapter 32 may be amended to allow for layered amortization or the full funding date may be extended.
- Once a System is fully funded, the employer(s) may redirect all or a portion of the retirement contribution that was allocated to reduce the System's unfunded liability to the employer's OPEB liability. Future contributions could be redirected back to the System if necessary.
- We can model these strategies and show the impact of future investment volatility.

Caveats and Questions

- It is important to note that this actuarial valuation is based on plan assets as of December 31, 2024. The System's actuarial status is not based on the daily fluctuations of the market, but on the market values on the last day of the Plan Year. While it is impossible to determine how the market will perform in the future, and how that will affect the results of next year's valuation, Segal is available to prepare projections of potential outcomes upon request.
- Projections, by their nature, are not a guarantee of future results. The projections are intended to serve as estimates of future outcomes, based on the information available to us and the assumptions described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions.
- A discussion of the risks inherent in the measurement of pension plan obligations will be included in the January 1, 2025 Actuarial Valuation and Review.



Disclosures

- This report was prepared in accordance with generally accepted actuarial principles and practices for the exclusive use and benefit of the Board, based upon information provided by the staff of the Retirement System and the System's other service providers.
- The actuarial assumptions and plan provisions used for this valuation are as described in Section 5 of the January 1, 2024 Actuarial Valuation and Review dated September 26, 2024, except for the changes noted previously. The financial information used in this valuation is as of December 31, 2024.
- The measurements shown in this actuarial valuation may not be applicable for other purposes. 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 and changes in plan provisions or applicable law.
- An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. We have not been retained to perform an analysis of the potential range of financial measurements, except where otherwise noted.
- Segal makes no representation or warranty as to the future status of the Retirement System and does not guarantee any particular result. This document does not constitute legal, tax, accounting or investment advice or create or imply a fiduciary relationship. The Board is encouraged to discuss any issues raised in this report with the System's legal, tax and other advisors before taking, or refraining from taking, any action.
- Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and

user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

- The actuarial calculations were directed under the supervision of Kathleen A. Riley, FSA, MAAA, EA. She is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of her knowledge, the information supplied in this actuarial valuation is complete and accurate. The assumptions used in this actuarial valuation were selected by the Boston Retirement Board based upon our analysis and recommendations. In her opinion, the assumptions are reasonable and take into account the experience of the Boston Retirement System and reasonable expectations. In addition, in her opinion, the combined effect of these assumptions is expected to have no significant bias.