

TABLE OF CONTENTS

REPORT SUMMARY	<u>Page</u>
Highlights	1
Introduction	2
Actuarial Experience	3
ACTUARIAL COSTS AND LIABILITIES	
Normal Costs	4
Present Value of Actuarial Accrued Liabilities	5
Present Value of Future Benefits	6
FUNDED STATUS AND APPROPRIATIONS	
Market Value of Plan Assets	7
Actuarial Value of Assets	8
Unfunded Actuarial Accrued Liabilities	9
Appropriations	10
Appropriation Forecast	11
EXHIBITS	
1 Age/Service Distribution with Salary	14
2 Retiree Distribution	15
3 Disabled Retiree Distribution	16
4 Cash Flow Forecast	17
5 Summary of Plan Provisions	18
6 Actuarial Methods and Assumptions	27
7 Glossary of Terms	32
CERTIFICATION	34
BREAKOUTS	35

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm]Output Com/Documents/Recovered Data/Peabody/Peabody/Peabody24_Val.xlsm]Output Com/Documents/Recovered Data/Peabody/Peabody24_Val.xlsm]Output Com/Documents/Recovered Data/Peabody/Peabody/Peabody24_Val.xlsm]Output Com/Documents/Recovered Data/Peabody/P$

Report Summary:

<u>nlights</u>	<u>January 1, 2022</u>	<u>January 1, 2024</u>	
Contributions			
Funding Schedule FY 2025	\$17,067,020	\$17,067,020	
Funding Schedule FY 2026	17,696,568	17,691,658	
Funded Ratios			
GAS No. 25	56.4%	59.5%	
<u>Participants</u>			
Actives	835	847	
Retirees and Beneficiaries	713	724	
Inactives	129	177	
Disabled	<u>56</u>	<u>53</u>	
Total	1,733	1,801	
<u>Payroll</u>			
Payroll of Active Members	\$50,386,720	\$58,226,549	
Average Payroll	60,343	68,744	
Normal Cost			
Employer	\$1,116,273	\$1,069,581	
Employee	4,530,681	5,296,718	
Administrative Expenses	<u>240,000</u>	<u>350,000</u>	
Total	\$5,886,954	\$6,716,299	
Actuarial Accrued Liabilities			
Actives	\$137,461,074	\$142,730,164	
Retirees, Beneficiaries, Disabilities and Inactives	207,435,098	223,314,830	
Total	\$344,896,172	\$366,044,994	
Actuarial Value of Assets	194,457,401	217,614,403	
Unfunded Actuarial Accrued Liabilities	\$150,438,771	\$148,430,591	

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2024, of Peabody 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 Peabody 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, based on the 2022 actuarial assumptions and plan provisions, the total unfunded actuarial accrued liability decreased by 1.4% to \$148,430,591. The decrease is the result of amortization payments offset by net unfavorable actuarial experience during the preceding years. The sources of actuarial (gains) and losses are as follows:

Assets	2,158,388
Retirements	(5,454,166)
Terminations	(41,123)
Death while active	182,125
Disabled while active	431,857
Salary	7,865,889
New Participants	4,580,509
Inactive Mortality	(2,262,902)
Inactive Status Changes	300,199
Benefit Payments	2,684,630
Other	<u>56,433</u>
Total (Gain) / Loss	10,501,841

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm]Output

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.

Т	able I	
	<u>January 1, 2022</u>	January 1, 2024
Superannuation	\$3,261,095	\$3,630,212
Termination	1,516,158	1,724,740
Death	197,806	222,395
Disability	671,895	788,952
Administrative Expenses	<u>\$240,000</u>	<u>\$350,000</u>
Total Normal Cost	\$5,886,954	\$6,716,299
% of Pay	11.7%	11.5%
Employee Contributions	\$4,530,681	\$5,296,718
% of Pay	9.0%	9.1%
Employer Normal Cost	\$1,356,273	\$1,419,581
% of Pay	2.7%	2.4%

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered\ Data/Peabody/Pension\ 2024/[Peabody24_Val.xlsm]Output$

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, 2022</u>	January 1, 2024	
Actives			
Superannuations	\$133,915,010	\$138,211,734	
Termination	(3,205,029)	(2,670,189)	
Death	1,965,106	2,073,243	
Disability	4,785,987	5,115,376	
Retirees and Inactives			
Retirees and Beneficiaries	\$186,589,710	\$201,029,643	
Terminated (Refund)	1,919,329	1,940,652	
Disabled	18,926,059	20,344,535	
Total	\$344,896,172	\$366,044,994	

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm]Output

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, 2022	January 1, 202
Actives		
Superannuation	\$154,056,311	\$160,761,113
Termination	7,458,742	9,540,521
Death	3,210,302	3,480,683
Disability	9,171,549	10,392,199
Retirees and Inactives		
Retirees and Beneficiaries	\$186,589,710	\$201,029,643
Terminated (Refund)	1,919,329	1,940,652
Disabled	18,926,059	20,344,535
Total	\$381,332,002	\$407,489,340

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered\ Data/Peabody/Pension\ 2024/[Peabody24_Val.xlsm]Output$

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, 2022</u>	<u>January 1, 2024</u>					
Cash equivalents	\$881,119	\$1,692,009					
Fixed income securities	0	0					
Equities	0	0					
International	0	0					
Real Estate	0	0					
Other	0	0					
PRIT Fund	210,139,497	198,349,623					
Accounts receivable	5,483,251	7,209,088					
Accounts payable	(180)	(8,800)					
Accrued income	<u>0</u>	<u>0</u>					
Total Market Value	\$216,503,687	\$207,241,920					
Total Actuarial Value	\$194,457,401	\$217,614,403					

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[PeabodyAssets24.xlsx] output the properties of the p$

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 four 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, 2024 is presented in Table V.

Table V

		January 1, 2024
(1)	Market value at January 1, 2023	\$189,434,907
(2)	2023 Contributions	\$24,120,044
(3)	2023 Payments	(\$26,304,565)
(4)	Net interest adjustment at 7.75% on (1), (2), and (3) to December 31, 2023	\$14,596,555
(5)	Expected market value on January 1, 2024	\$201,846,941
	(1) + (2) + (3) + (4)	
(6)	Actual market value on January 1, 2024	\$207,241,920
(7)	2023 (Gain) / Loss	(\$5,394,979)
(8)	80% of 2023 (Gain) / Loss	(\$4,315,983)
(9)	2022 (Gain) / Loss	\$40,387,518
(10)	60% of 2022 (Gain) / Loss	\$24,232,511
(11)	2021 (Gain) / Loss	(\$20,927,706)
(12)	40% of 2021 (Gain) / Loss	(\$8,371,082)
(13)	2020 (Gain) / Loss	(\$5,864,812)
(14)	20% of 2020 (Gain) / Loss	(\$1,172,962)
(15)	Actuarial value on January 1, 2024, $(6) + (8) + (10) + (12) + (14)$	
	but not less than 80% nor greater than 120% of (6)	\$217,614,403
(16)	Ratio of actuarial value to market value	105.01%
(17)	Actuarial Value Return for 2022	6.83%
(18)	Actuarial Value Return for 2023	7.51%
(19)	Market Value Return for 2022	-11.05%
(20)	Market Value Return for 2023	10.61%

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.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		
	<u>January 1, 2022</u>	January 1, 2024
Actuarial Accrued Liability	\$344,896,172	\$366,044,994
Actuarial Assets	194,457,401	217,614,403
Unfunded Actuarial Accrued Liability	\$150,438,771	\$148,430,591
Funded Status	56.4%	59.5%

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm]Output

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, 2036 \$ 147,818,205 over 12 years with 4.75% increasing payments
- Increasing amortization of the Early Retirement Incentive by June 30, 2028 \$612,386 over 4 years with 2.5% increasing payments
- Interest adjustment for payments contributed quarterly over fiscal year.

The Board voted to adopt a funding schedule that increases 8% per year until it matches the description above. The pension appropriation is shown in Table VII.

Table VII			
	<u>January 1, 2022</u>	<u>January 1, 202</u>	
Normal cost	\$1,356,273	\$1,419,581	
Amortization payment of the accrued liability	13,316,683	14,319,679	
Amortization payment of ERI liability	<u>156,812</u>	164,751	
Total cost	\$14,829,768	\$15,904,011	
% of Pay	29.4%	27.39	
Fiscal 2025 cost	\$17,067,020	\$17,067,020	
Fiscal 2026 cost	\$17,696,568	\$17,691,65	

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 4.0% 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 increase during the next 11 years until the unfunded liabilities are substantially paid off, at which time only the normal cost will remain. The total cost represents about 29% of payroll until the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 1% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered\ Data/Peabody/Pension\ 2024/[Peabody24_Val.xlsm] Approp.\ Results$

Appropriation Forecast

Fiscal		Employer	Amortization	Employer	Employer		
Year	Employee	Normal Cost	Payments	Total Cost	Total Cost	Unfunded	Funded
Ending	Contribution	with Interest	with Interest	with Interest	% of Payroll	Liability	Ratio %**
2025	\$5,296,718	\$1,515,063	\$15,551,957	\$17,067,020	29.3	\$148,337,300	59.5
2026	5,600,750	1,513,144	16,178,514	17,691,658	29.1	144,226,468	63.7
2027	5,921,419	1,507,983	16,942,938	18,450,921	29.0	139,071,003	67.6
2028	6,259,607	1,499,294	17,743,571	19,242,865	29.0	132,744,266	71.3
2029	6,616,241	1,486,770	18,388,044	19,874,814	28.6	125,118,928	74.8
2030	6,992,296	1,470,082	19,261,477	20,731,559	28.6	116,252,008	78.2
2031	7,388,799	1,448,881	20,176,397	21,625,278	28.5	105,816,128	81.4
2032	7,806,827	1,422,795	21,134,776	22,557,571	28.5	93,647,810	84.6
2033	8,247,515	1,391,428	22,138,677	23,530,105	28.4	79,568,918	87.8
2034	8,712,057	1,354,357	23,190,265	24,544,622	28.4	63,385,422	90.9
2035	9,201,706	1,311,131	24,291,802	25,602,933	28.3	44,886,077	93.9
2036	9,717,781	1,261,273	25,445,663	26,706,936	28.3	23,840,976	97.0
2037	10,261,670	1,204,272	0	1,204,272	1.2	0	100.0
2038	10,834,831	1,139,587	0	1,139,587	1.1	0	100.0
2039	11,322,398	1,190,869	0	1,190,869	1.1	0	100.0
2040	11,831,906	1,244,458	0	1,244,458	1.1	0	100.0
2041	12,364,342	1,300,458	0	1,300,458	1.1	0	100.0
2042	12,920,737	1,358,979	0	1,358,979	1.1	0	100.0
2043	13,502,170	1,420,133	0	1,420,133	1.1	0	100.0
2044	14,109,768	1,484,039	0	1,484,039	1.1	0	100.0
2045	14,744,707	1,550,821	0	1,550,821	1.1	0	100.0
2046	15,408,219	1,620,608	0	1,620,608	1.1	0	100.0
2047	16,101,589	1,693,535	0	1,693,535	1.1	0	100.0
2048	16,826,161	1,769,744	0	1,769,744	1.1	0	100.0
2049	17,583,338	1,849,383	0	1,849,383	1.1	0	100.0
2050	18,374,588	1,932,605	0	1,932,605	1.1	0	100.0
2051	19,201,445	2,019,572	0	2,019,572	1.1	0	100.0
2052	20,065,510	2,110,453	0	2,110,453	1.1	0	100.0
2053	20,968,457	2,205,423	0	2,205,423	1.1	0	100.0
2054	21,912,038	2,304,667	0	2,304,667	1.1	0	100.0
2055	22,898,080	2,408,377	0	2,408,377	1.1	0	100.0
2056	23,928,493	2,516,754	0	2,516,754	1.1	0	100.0

^{**} Beginning of Fiscal Year

EXHIBITS

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/Report/[ACT1.xls]Actives

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

Attained	Average Salary	- 0		4.5.40					40.	
Age	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 0	2	0	0	0	0	0	0	0	0	2
	56,693	0	0	0	0	0	0	0	0	56,693
20-24	20	0	0	0	0 0	0	0	0	0	20
	45,064	0	0	0	U	0	0	0	0	45,064
25-29	44	4	0	0	0	0	0	0	0	48
	63,287	67,509	0	0	0	0	0	0	0	63,638
30-34	40	27	4	0	0	0	0	0	0	71
	65,835	77,718	86,158	0	0	0	0	0	0	71,499
35-39	29	23	21	1	0	0	0	0	0	74
	56,779	71,578	81,483	75,046	0	0	0	0	0	68,636
40-44	27	20	10	24	4	0	0	0	0	85
	48,130	68,379	93,713	82,153	111,299	0	0	0	0	70,836
45-49	25	17	9	14	20	4	0	0	0	89
	46,971	54,052	79,406	84,642	83,840	104,120	0	0	0	68,383
50-54	26	24	17	9	11	20	9	1	4	121
	47,056	48,090	57,547	86,166	78,063	101,751	105,572	119,459	0	70,361
55-59	26	30	17	18	19	12	16	8	0	146
	49,937	52,224	52,292	48,891	78,987	89,496	97,992	99,357	0	65,558
60-64	18	19	20	12	15	6	15	6	2	113
	41,476	51,848	61,156	72,827	59,315	87,734	96,950	97,718	96,680	66,184
65-69	10	9	6	13	9	2	4	0	2	55
	36,559	53,556	48,396	47,730	61,698	98,041	93,916	0	83,857	55,513
70+	2	5	1	3	5	2	3	2	1	24
	22,390	26,813	5,100	48,729	12,184	67,964	41,116	31,195	0	49,193
Total Employees		178	105	94	83	46	47	17	9	848
Average Salary	52,906	59,681	67,556	69,445	72,137	95,302	95,134	91,942	40,119	66,191

2

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/Report/[RET1.xls]Retirees

Exhibit 2 - Retiree Distribution as of January 1, 2024

	Number	of Employ	ees	Tota	l 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	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	4	4	0	103,695	103,695
50-54	1	1	2	84,049	35,208	119,257
55-59	9	25	34	72,951	1,285,659	1,358,610
60-64	36	45	81	647,125	2,494,628	3,141,754
65-69	60	72	132	1,231,433	3,280,475	4,511,908
70-74	74	61	135	1,430,577	2,466,471	3,897,048
75-79	81	51	132	1,607,490	2,150,769	3,758,259
80-84	41	41	82	749,488	1,301,626	2,051,114
85-89	55	21	76	955,556	819,461	1,775,017
90-94	22	7	29	423,284	167,007	590,291
95+	15	2	17	280,342	48,096	328,439
	394	330	724	7,482,295	14,153,096	21,635,391
rage (Age/Payment)	76.59	72.15	74.57	18,991	42,888	29,883
uency Percent	54.4	45.6	100	34.6	65.4	100

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered\ Data/Peabody/Pension\ 2024/Report/[DIS1.xls]Disabled$

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

-		of Employ	ees	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	0	0	0	0	0		
30-34	0	0	0	0	0	0		
35-39	0	0	0	0	0	0		
40-44	0	0	0	0	0	0		
45-49	1	0	1	65,167	0	65,167		
50-54	0	2	2	0	109,258	109,258		
55-59	1	5	6	12,738	310,185	322,923		
60-64	0	5	5	0	212,492	212,492		
65-69	2	8	10	46,401	328,795	375,196		
70-74	1	5	6	21,692	228,954	250,646		
75-79	4	7	11	103,202	263,696	366,897		
80-84	0	4	4	0	114,117	114,117		
85-89	1	4	5	14,014	140,237	154,251		
90-94	0	2	2	0	99,858	99,858		
95-99	1	0	1	17,693	0	17,693		
Total	11	42	53	280,907	1,807,592	2,088,498		
Average (Age/Payment)	73.9	71.95	72.35	25,537	43,038	39,406		
Frequency Percent	20.8	79.2	100	13.5	86.5	100		

 $https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm] Cash Flow and the compact of the compact of$

EXHIBIT 4 - CASH FLOW 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	\$4,238,129	\$5,296,718	\$17,067,020	\$16,814,106	\$34,939,714
2025	5,878,572	5,600,750	17,691,658	19,565,610	36,979,446
2026	7,358,234	5,921,419	18,450,921	22,389,619	39,403,725
2027	8,861,524	6,259,607	19,242,865	25,401,482	42,042,430
2028	10,349,939	6,616,241	19,874,814	28,617,468	44,758,584
2029	11,789,860	6,992,296	20,731,559	32,048,590	47,982,584
2030	13,187,515	7,388,799	21,625,278	35,732,206	51,558,767
2031	14,473,576	7,806,827	22,557,571	39,698,304	55,589,125
2032	15,684,562	8,247,515	23,530,105	43,980,755	60,073,814
2033	16,758,313	8,712,057	24,544,622	48,617,198	65,115,564
2034	17,820,203	9,201,706	25,602,933	53,646,106	70,630,542
2035	18,769,609	9,717,781	26,706,936	59,108,051	76,763,159
2036	19,645,287	10,261,670	1,204,272	64,794,972	56,615,627
2037	20,411,261	10,834,831	1,139,587	69,168,575	60,731,731
2038	21,118,842	11,322,398	1,190,869	73,856,580	65,251,005
2039	21,770,748	11,831,906	1,244,458	78,897,315	70,202,931
2040	22,272,227	12,364,342	1,300,458	84,327,931	75,720,504
2041	22,673,902	12,920,737	1,358,979	90,190,356	81,796,170
2042	23,027,370	13,502,170	1,420,133	96,525,901	88,420,834
2043	23,321,001	14,109,768	1,484,039	103,377,572	95,650,378
2044	23,589,205	14,744,707	1,550,821	110,790,960	103,497,283
2045	23,760,439	15,408,219	1,620,608	118,816,651	112,085,039
2046	23,844,734	16,101,589	1,693,535	127,511,702	121,462,092
2047	36,358,252	16,826,161	1,769,744	136,461,354	118,699,007
2048	35,782,718	17,583,338	1,849,383	145,695,152	129,345,154
2049	35,384,824	18,374,588	1,932,605	155,747,845	140,670,214
2050	34,869,124	19,201,445	2,019,572	166,683,309	153,035,202
2051	47,315,485	20,065,510	2,110,453	178,084,777	152,945,255
2052	44,811,959	20,968,457	2,205,423	190,048,428	168,410,349
2053	46,316,011	21,912,038	2,304,667	203,058,911	180,959,605

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. 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 <u>does not</u> 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 <u>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. <u>Creditable Service</u>

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, if hired before April 2, 2012
- (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	Perce	ntage of Average	Salary
Retirement	Group 1	Group 2	Group 4
	005	025	00.5
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	.004
42	.003	.002	.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	Percei	ntage 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	Percei	ntage of Average	Salary
Retirement	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	.01020	.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. <u>Deferred Vested Retirement</u>

a. <u>Eligibility</u>:

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. <u>Eligibility</u>:

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. <u>Refund of Contributions</u>:

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. <u>Cost-of-Living Increases</u>

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 7.75% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 3.0% per year.

6. <u>Cost-of-Living Increases</u>

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$15,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined

using a five-year smoothing of asset returns greater than or less than the assumed rate of return.

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>	General <u>Employees</u>	Police and Fire Employees
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-2019 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:

	Male	Female	Male and Female
	General	General	Police and Fire
<u>Age</u>	Employees	Employees	Employees
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:

	Male General	Female General	Male and Female Police and Fire
<u>Age</u>	Employees	Employees	Employees
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	0.2615	0.1939	1.0000
70 to 76	0.2682	0.1959	1.0000
77 to 79	0.2500	0.2000	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:

Attained <u>Age</u>	General <u>Employees</u>	Police and Fire Employees
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 2024 is \$350,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

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

2. Actuarial Assumptions

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

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

3. Actuarial Cost Method

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

4. Actuarial Present Value

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

5. Forecast

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

6. Normal Cost

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

7. <u>Unfunded Actuarial Accrued Liability</u>

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 Peabody 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. Therman

Daniel W. Sherman, ASA, MAAA

July, 2024

BREAKOUTS

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Peabody/Pension 2024/[Peabody24_Val.xlsm]Actuarybreak

Breakouts

	<u>Total</u>	<u>City</u>	<u>Light</u>	Housing <u>Authority</u>	<u>Water</u>	<u>Sewer</u>	<u>Hospital</u>	Brooksby <u>Farm</u>	Skating <u>Rink</u>	Golf Course
(1) Payroll of Active Participants Pecentage of Total Payroll	\$58,226,549	\$46,314,457	\$7,432,226	\$1,458,185	\$1,787,849	\$173,602	\$0	\$271,008	\$345,833	\$443,389
	100.00%	79.54%	12.76%	2.50%	3.07%	0.30%	0.00%	0.47%	0.59%	0.76%
(2) Actuarial Accrued Liability	\$366,044,994	\$288,544,895	\$50,360,273	\$9,893,566	\$7,362,084	\$1,676,407	\$4,514,645	\$1,054,739	\$1,221,993	\$1,416,391
(3) Assets	\$217,614,403	\$171,540,456	\$29,939,272	\$5,881,743	\$4,376,772	\$996,627	\$2,683,965	\$627,044	\$726,477	\$842,047
(4) Unfunded Actuarial Accrued Liability	\$148,430,591	\$117,004,439	\$20,421,001	\$4,011,823	\$2,985,312	\$679,780	\$1,830,680	\$427,695	\$495,516	\$574,344
 (5) Total Employer Contributions (a) ERI (b) Remaining Amortizations (c) Employer Normal Cost (d) Administrative Expenses (e) Total Appropriation Percent of Total Appropriation 	\$164,751	\$97,242	\$37,598	\$9,988	\$6,319	\$13,604	\$0	\$0	\$0	\$0
	15,389,260	12,131,002	2,117,246	415,945	309,517	70,479	189,805	44,343	51,375	59,548
	1,069,581	930,815	116,280	(13,103)	9,816	8,228	-	209	10,077	7,259
	<u>350,000</u>	<u>278,399</u>	44,674	<u>8,764</u>	10,749	1,043	<u>0</u>	<u>1.628</u>	<u>2,079</u>	<u>2,664</u>
	\$16,973,592	\$13,437,458	\$2,315,798	\$421,594	\$336,401	\$93,354	\$189,805	\$46,180	\$63,531	\$69,471
	100.00%	79.17%	13.64%	2.48%	1.98%	0.55%	1.12%	0.27%	0.37%	0.41%
(6) Fiscal 2025 Appropriation Percent of Total Appropriation	\$17,067,020	\$13,550,395	\$2,226,171	\$423,296	\$353,236	\$101,259	\$241,038	\$42,975	\$61,783	\$66,869
	100.00%	79.40%	13.04%	2.48%	2.07%	0.59%	1.41%	0.25%	0.36%	0.39%
(7) Fiscal 2026 Appropriation Percent of Total Appropriation	\$17,691,658	\$14,005,919	\$2,413,761	\$439,425	\$350,631	\$97,304	\$197,828	\$48,139	\$66,220	\$72,412
	100.00%	79.17%	13.64%	2.48%	1.98%	0.55%	1.12%	0.27%	0.37%	0.41%
(8) Fiscal 2027 Appropriation Percent of Total Appropriation	\$18,450,921	\$14,607,004	\$2,517,351	\$458,284	\$365,679	\$101,480	\$206,318	\$50,205	\$69,062	\$75,520
	100.00%	79.17%	13.64%	2.48%	1.98%	0.55%	1.12%	0.27%	0.37%	0.41%