January 1, 2023

Actuarial Valuation Report

Concord Retirement System

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September 22, 2023

Concord Retirement Board
55 Church Street
West Concord, MA 01742

To the Concord Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2023 actuarial valuation of the Concord Retirement System. This valuation and report were prepared using generally accepted actuarial principles and practices. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent a reasonable estimate of anticipated experience of the system except where noted in the text.

Stone Consulting, Inc. is completely independent of the Town of Concord and the Concord Retirement System. This includes any of its officers and key personnel. Neither we or anyone else closely associated with us has any relationship with the Town of Concord or the Concord Retirement System that would impair our independence, other than this or related assignments.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results. The use of these results may not be appropriate for all circumstances.

Colin Edgar is a consultant for Stone Consulting, Inc., a member of the American Academy of Actuaries, and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan

Colin Edgar
Member, American Academy of Actuaries

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Report Summary

This report presents the results of the actuarial valuation of the Concord Retirement System as of January 1, 2023. The valuation was performed at the request of the Retirement Board for the purpose of determining the contribution requirements for Fiscal Year 2025 and beyond.

Summary of Results and Experience
▪ Experience and Funding Schedule The FY2024 contribution is $6,948,976, which is consistent with the projected FY2025 contribution from the prior valuation. The schedule follows a 5-year level amortization of the unfunded liability, finishing in FY2029; this represents a one-year extension compared to the schedule from the 2022 valuation, but is still two years earlier than the schedule from the 2021 valuation. The funding ratio based on Actuarial Value of Assets increased from 93.4% to 93.9%.
▪ Assumptions/methodology: This valuation reflects a one-time COLA of 5% on a Base of $14,000, compared to a typical increase of 3%. This increased the liability by $797 thousand. Assumptions and valuation methodology are discussed in Appendix A, on page 19.

Contribution requirements are based on the financial condition of the system as of December 31, 2022, as well as actuarial liability results, which are based on:

- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2023);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

Format of the Report

- The funding schedule is shown on page 3, followed by an explanation of the actuarial results, funding schedule components, and a history of the funding schedules used by the Retirement System.
- Full actuarial valuation results are shown on page 18, with prior results included for comparison. The Concord Retirement Board conducted their previous actuarial valuation effective January 1, 2022.

Development of Funding Schedule

The funding contribution consists of three parts:

- Net Normal Cost: this is the amount of liability generated by active employees earning another year of service, and includes administrative expense.
- Amortization: this is the amount of the Unfunded Liability that will be paid off by this contribution.
- Net 3(8)(c) Payments: these are benefit payments made to other systems for service earned as a member of the Concord Retirement System, or paid to the Concord Retirement System for service earned with other retirement systems.

The appropriation for Fiscal 2025 is as follows:

Net Employer Normal Cost for Fiscal 2025 (including admin. expenses)	$	3,349,698
Net 3(8)(c) Payments		121,078
Amortization		3,478,200
Timing Adjustment*		0
Total Appropriation required for Fiscal 2025	$	6,948,976

* Contributions are assumed to be made at the beginning of the fiscal year.

NOTE: for all tables in this report, totals may not sum due to rounding.

- The schedule's length is five (5) years which is a one-year extension compared to the 4 years remaining from the 5-year schedule from the January 1, 2022 valuation. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is sixteen years to Fiscal 2040.
- Concord's funding schedule was developed by setting the contribution for FY2025 equal to the planned contribution from the 2022 valuation, with the amortization of the unfunded liability remaining level in subsequent years until FY2029, when the contribution decreases and amortizes the remainder of the unfunded liability.

The schedule is shown on the following page.

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution
2025	3,349,698	13,754,753	3,478,200	121,078	6,948,976
2026	3,492,060	10,944,529	3,478,200	121,078	7,091,338
2027	3,640,473	7,951,641	3,478,200	121,078	7,239,751
2028	3,795,193	4,764,215	3,478,200	121,078	7,394,471
2029	3,956,489	1,369,606	1,369,606	121,078	5,447,173
2030	4,124,639	-	-	121,078	4,245,718

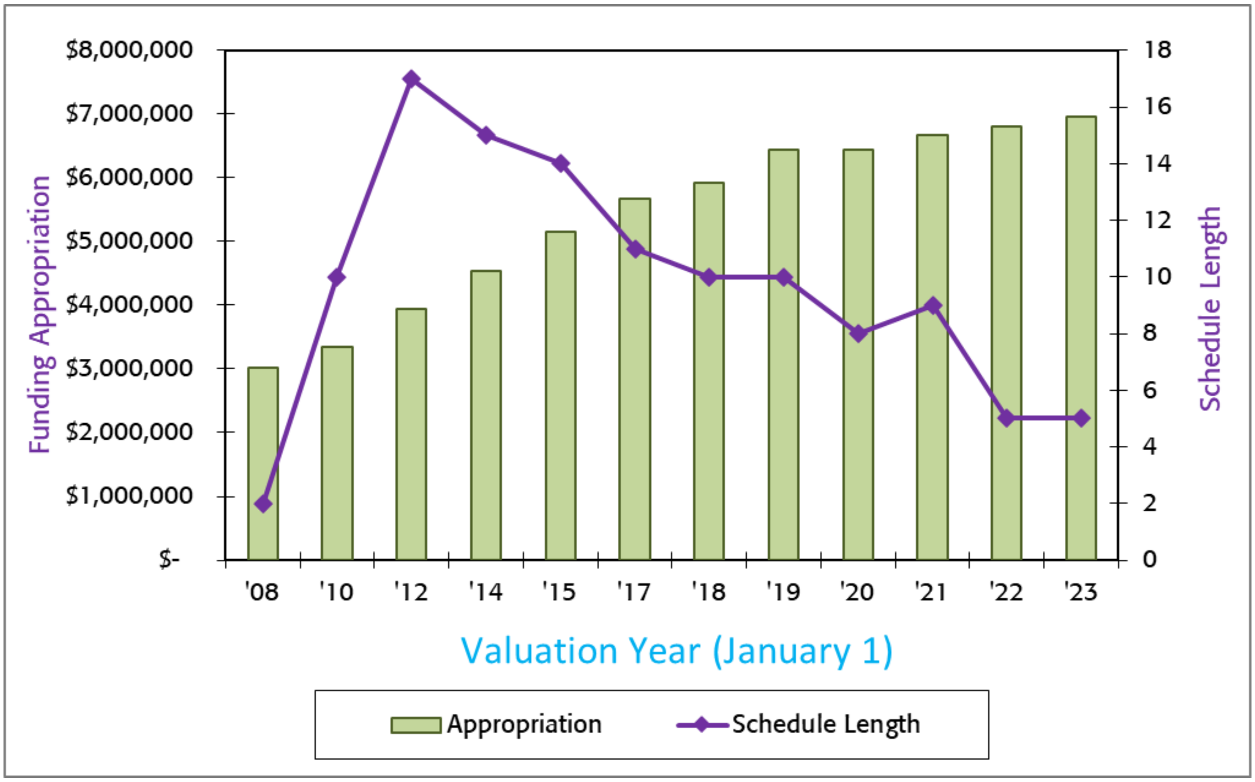
Amortization of Unfunded Liability as of July 1, 2024

<u>Bases in the funding schedule:</u>

- Level amortization of the unfunded actuarial accrued liability: 5 years.

History of Funding Effort

Below is a history of the length of funding schedule used by the Concord Retirement System, and the amount of the initial contribution for each funding schedule.

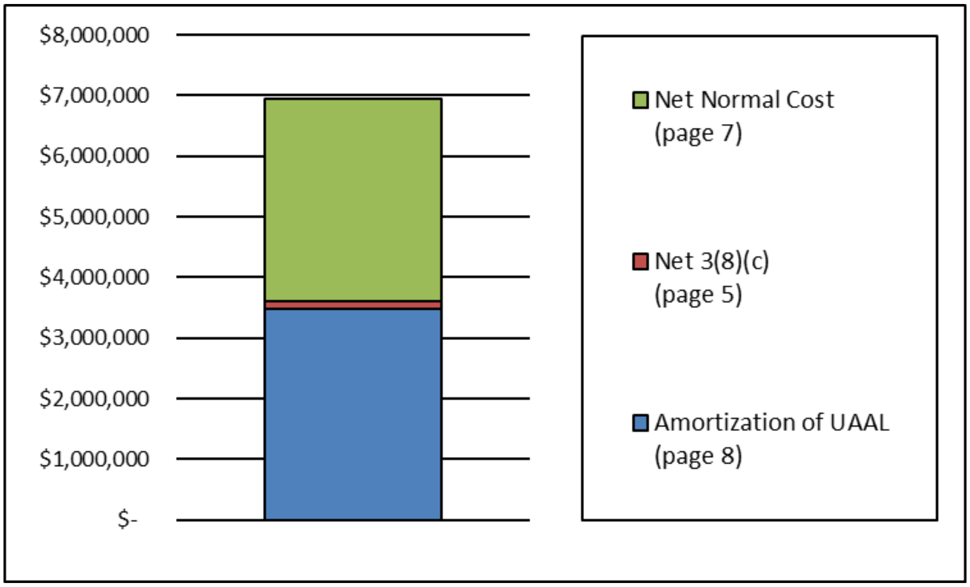


The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

The following pages discuss the components that make up the contribution, and how they are calculated from the actuarial results.

Components of Funding Appropriation

Components of the funding contribution are compared below, and discussed on the following pages.



Net 3(8)(c) Payments

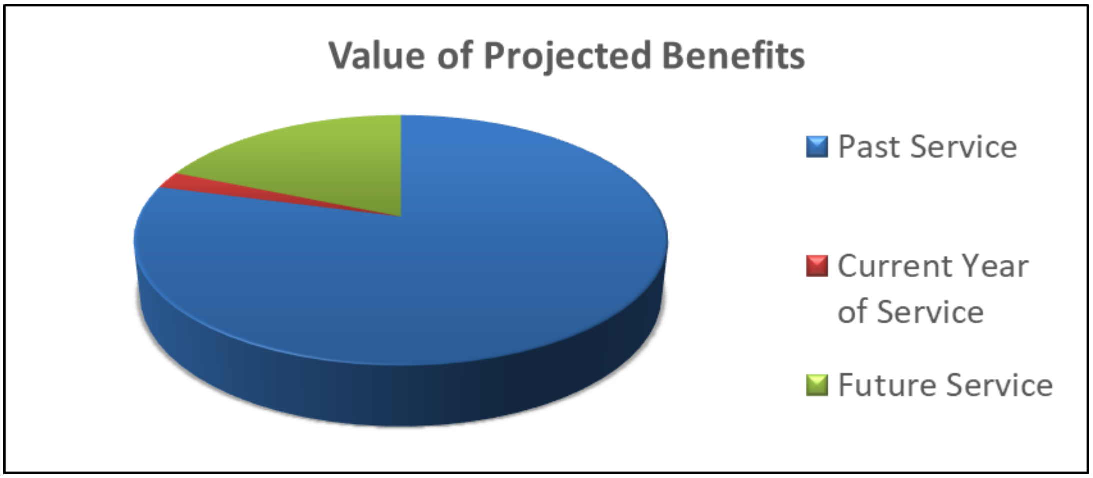
- 3(8)(c) payments are benefits which the Concord Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system. The net amount is equal to what Concord pays out, less what Concord receives from other systems, based on the most recent PERAC annual statement.

3(8)(c) payments made to other systems	$	709,281
3(8)(c) payments received from other systems		(588,203)
Net payments in funding schedule	$	121,078

- For the funding schedule, the amount of net payments is assumed to remain level in future years.

Development of Actuarial Results

Actuarial liabilities are calculated based on benefits that members are projected to receive in the future. The value of projected benefits is divided between past service, future service, and the current year of service.



The actuarial funding method (in this case, entry age normal), assigns values to each of these periods of service.

- <u>Past service:</u> The Actuarial Accrued Liability (AAL), is the portion of the benefit value that is associated with past service; this can be thought of as the "price" of benefits already earned by members of the system.

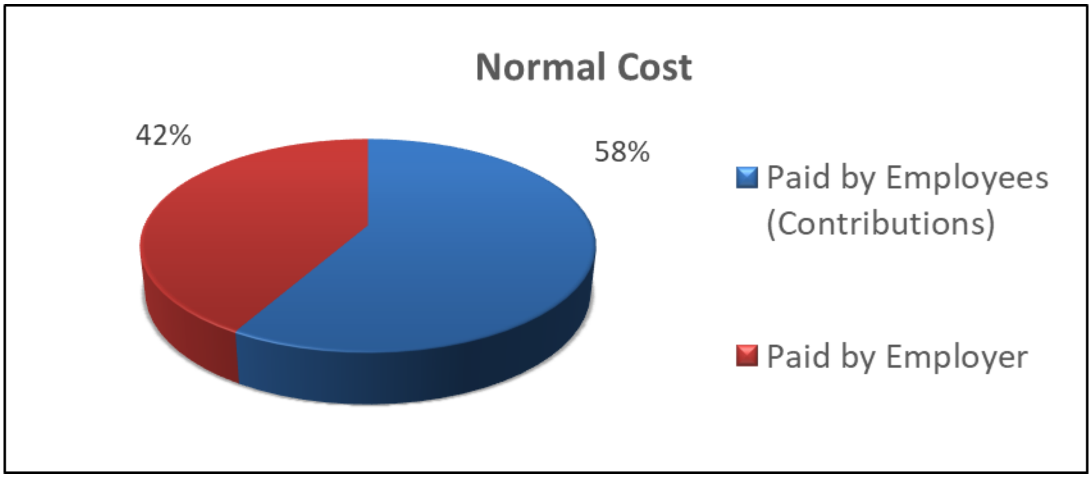
- <u>Current year:</u> The "price" of benefits being earned during the current year is referred to as the Normal Cost (NC). This includes only the actives, as neither inactives nor retirees are earning any additional service.

- <u>Future service:</u> The amount for future service is not included in the liability, as those years of service have not yet been earned.

For retirees, the "past service" amount accounts for the entire value of their benefits; they have completed their careers, and will earn no more service during the current year or any future years.

Net Normal Cost

The entire Normal Cost is not borne by the System; a significant portion is paid by employee contributions. The portion of the Normal Cost not covered by employee contributions is the amount that must be paid through funding appropriations; this is the Net Normal Cost.



The Net Normal Cost as seen in the funding schedule is calculated by adjusting for timing, and adding in the administrative expense. The calculation is shown below, and compared to the covered payroll:

	January 1, 2023	% of Payroll*
Gross Normal Cost (GNC)	$ 6,570,247	16.4%
Employees Contribution	3,829,949	9.6%
Net Normal Cost (NNC)	$ 2,740,298	6.8%
Adjustment to beginning of Fiscal Year 2025**	176,537	
Administrative Expense	432,864	1.1%
Adjusted Net Normal Cost With Admin. Expense	$ 3,349,698	

* Payroll paid in 2022 for employees as of January 1, 2023 is $40,078,931. Payroll for new hires in 2022 was annualized.

** The NNC is adjusted from January 1, 2023 to Fiscal 2025 by rolling it forward with a salary increase factor of 4.25%.

Unfunded Liability

The Unfunded Actuarial Accrued Liability (UAAL) is the portion of the AAL that is not covered by the Actuarial Value of Assets (AVA).

This is adjusted from the date of the valuation to the date of the contribution (July 1, 2024) to produce the Unfunded Liability seen in Fiscal Year 2025 in the funding schedule.

The liability results were as follows:

	January 1, 2023
Actuarial Accrued Liability	
a. Active Members	$ 107,489,539
b. Inactive Members	4,054,129
c. Retired Members and Beneficiaries	128,369,736
d. Total	$ 239,913,404
Unfunded Actuarial Accrued Liability	
a. Actuarial Accrued Liability	$ 239,913,404
b. Less Actuarial Value of Assets	225,252,027
c. Unfunded Actuarial Accrued Liability	$ 14,661,377
d. Adjustment to FY2025	(906,624)
e. Unfunded Actuarial Accrued Liability as of FY2025	$ 13,754,753

In developing the funding schedule, we used a “fresh start” approach in which the UAAL (not counting Early Retirement Incentives) is amortized from scratch instead of maintaining the existing amortization amount and separately amortizing gains and losses. <u>This can result in a schedule in which the changes in contribution amounts from year to year are more consistent.</u>

The UAAL and funding ratio are measures of the plan’s funded status, which reflect the plan’s position as of January 1, 2023. We believe these measures, by themselves, are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations. However, we believe these measures, in conjunction with the plan’s funding schedule, are appropriate for assessing the amount of future contributions.

Active Liability by Decrement

An active member can incur liabilities for the Retirement System in one of four ways:

- They can retire (if eligible),
- They can become disabled and collect a disability benefit,
- They can die, or
- They can terminate service and withdraw their ASF balance or receive a deferred retirement benefit

Active members have a portion of their liability associated with each of these four outcomes. The Accrued Liability for active members is divided as follows:

Active Actuarial Accrued Liability	
Superannuation Retirement	$ 98,983,760
Death	2,281,141
Disability	4,390,360
Withdrawal	1,834,278
TOTAL	$ 107,489,539

Demographic Results

Actives	
a. Number	569
b. Annual Compensation	$40,078,931
c. Average Annual Compensation	$70,437
d. Average Attained Age	47.9
e. Average Past Service	10.2
Retired, Disabled and Beneficiaries	
a. Number	358
b. Total Benefits (excluding State COLA)	$11,977,467
c. Average Benefits	$33,457
d. Average Age	73.2
Inactives	
a. Number	242

- Total compensation changed by 6.4% over the prior valuation
  - Average annual compensation changed by 6.0%
  - Salary loss of $1.3 million compared to projected experience

History of Demographic Statistics

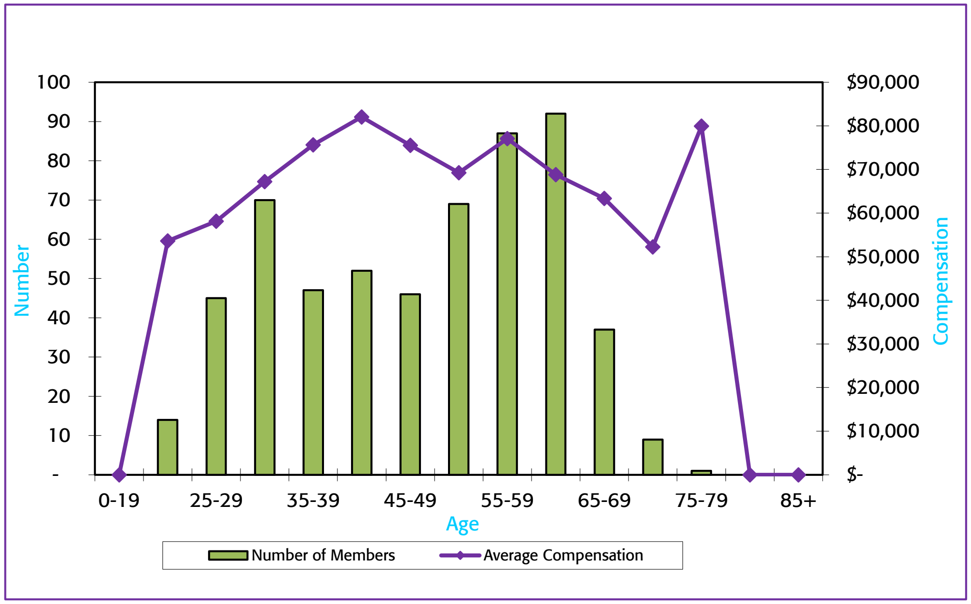
Valuation Year	Actives	Average Age	Average Past Service	Average Annual Pay
2023	569	47.9	10.2	$70,437
2022	567	47.7	10.1	$66,435
2021	588	47.6	10.4	$64,130
2020	544	48.7	11.3	$64,838
2019	527	49.4	12.0	$63,389
2018	519	49.6	12.0	$61,926
2017	535	49.0	11.5	$59,113
2016	519	49.4	12.0	$57,690
2015	513	49.6	12.2	$57,083
2014	502	49.5	12.3	$54,809
2012	493	49.3	12.0	$51,159
2010	488	48.7	11.7	$49,378
2008	461	48.2	11.3	$46,193
2006	451	47.8	11.1	$41,963
2004	438	47.1	10.5	$41,086
2002	444	46.2	10.0	$37,784
2000	434	45.6	9.7	$34,119

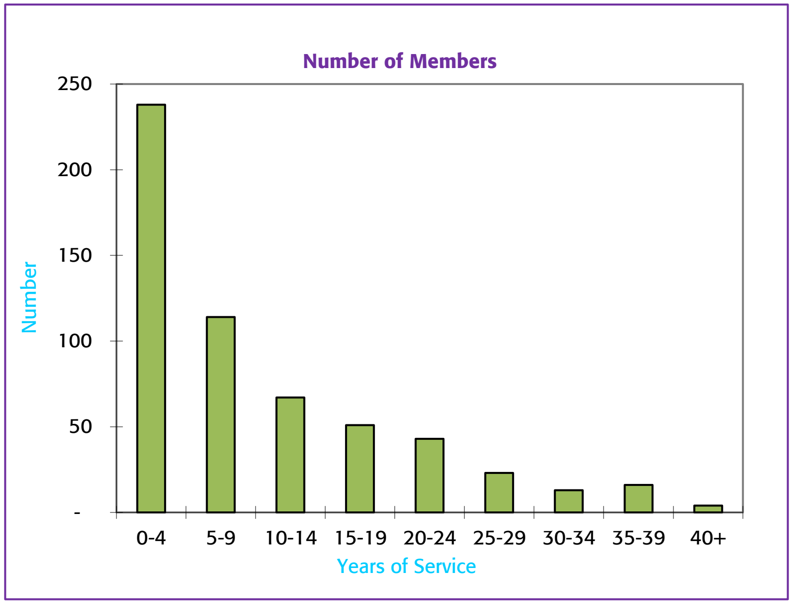
- Both employee age and service leveled off and now decreased in recent years, following years of increases. This pattern has appeared in the experience of several systems in the Commonwealth. Average annual compensation has grown by 106.4% (3.2% annually) over the past twenty-three years.

Distribution of Plan Members as of January 1, 2023

ACTIVE MEMBERS

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	14	-	-	-	-	-	-	-	-	14	$ 750,468	$ 53,605
25-29	42	3	-	-	-	-	-	-	-	45	$ 2,616,707	$ 58,149
30-34	44	22	4	-	-	-	-	-	-	70	$ 4,706,030	$ 67,229
35-39	26	8	11	2	-	-	-	-	-	47	$ 3,555,232	$ 75,643
40-44	24	11	8	8	1	-	-	-	-	52	$ 4,266,313	$ 82,044
45-49	14	14	5	3	8	2	-	-	-	46	$ 3,475,338	$ 75,551
50-54	22	12	17	4	4	6	2	2	-	69	$ 4,778,525	$ 69,254
55-59	23	19	6	9	13	6	5	6	-	87	$ 6,705,675	$ 77,077
60-64	23	15	6	19	10	6	5	6	2	92	$ 6,330,135	$ 68,806
65-69	4	7	9	5	7	1	1	2	1	37	$ 2,344,577	$ 63,367
70-74	2	3	1	1	-	2	-	-	-	9	$ 470,003	$ 52,223
75-79	-	-	-	-	-	-	-	-	1	1	$ 79,928	$ 79,928
80-84	-	-	-	-	-	-	-	-	-	-	$ -	$ -
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	**238**	**114**	**67**	**51**	**43**	**23**	**13**	**16**	**4**	**569**	**$ 40,078,931**	**$ 70,437**





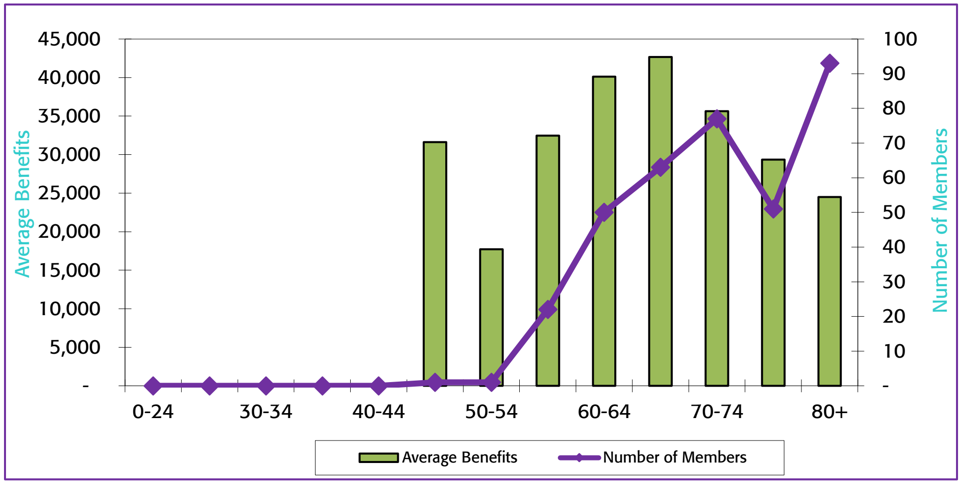
Distribution of Plan Members as of January 1, 2023

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	1	17,712	17,712
55-59	20	31,498	629,955
60-64	49	40,371	1,978,184
65-69	56	44,713	2,503,926
70-74	73	35,229	2,571,693
75-79	50	29,349	1,467,469
80+	90	24,359	2,192,320
TOTAL	**339**	**$ 33,514**	**$ 11,361,259**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	1	31,639	31,639
50-54	-	-	-
55-59	2	42,258	84,515
60-64	1	28,044	28,044
65-69	7	26,279	183,951
70-74	4	42,900	171,599
75-79	1	29,361	29,361
80+	3	29,033	87,099
TOTAL	**19**	**$ 32,432**	**$ 616,208**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	1	31,639	31,639
50-54	1	17,712	17,712
55-59	22	32,476	714,470
60-64	50	40,125	2,006,228
65-69	63	42,665	2,687,877
70-74	77	35,627	2,743,293
75-79	51	29,350	1,496,830
80+	93	24,510	2,279,419
TOTAL	**358**	**$ 33,457**	**$ 11,977,467**



Benefits shown are net of State reimbursed COLA.

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Assets

	Cash	$	2,823,681.86
	Pooled Domestic Equity Funds		14,605,106.90
	Pooled International Equity Funds		6,775,645.28
	Pooled Domestic Fixed Income Funds		36,366,317.10
	Pooled Alternative Investments		10,727,036.38
	Pooled Real Estate Funds		15,630,759.98
	Pooled Domestic Balanced Funds		47,762,617.98
	Hedge Funds		16,561,651.84
	PRIT Cash		58.66
	PRIT FUND		53,768,969.08
A	Sub-Total:	$	205,021,845.06
	Accounts Receivable	$	6,238.08
	Accounts Payable		(141,095.70)
B	Sub-Total:	$	(134,857.62)
	Market Value of Assets [(A) + (B)]	$	204,886,987.44

- Annual return in calendar 2022: -11.7% vs. a 6.50% assumption.
  - $42,523,758 net actuarial asset loss in Calendar Year 2022
  - 6.82% annual return on actuarial value of assets (page 14)

Actuarial Value of Assets

For its Actuarial Value of Assets (AVA), Concord uses a four-year asset smoothing method which recognizes gains and losses over a four-year period. For example, for a gain in 2019, 25% would be recognized in 2020, another 25% in 2021, another 25% in 2022, and the final 25% in 2023.

The calculation of the smoothed asset value is shown on the following page. The Actuarial Value of Assets is $20.4 million higher than the Market Value of Assets; the recognition of actuarial asset losses in future valuations will increase the Unfunded Actuarial Accrued Liability, and by extension, the amount of funding required.

Four-Year Asset Smoothing

1. Market value of assets including receivable/payable as of 01/01/2023 — $ 204,844,208

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2022	($42,523,758)	75%	($31,892,819)
b.	2021	$20,810,180	50%	$10,405,090
c.	2020	$4,319,638	25%	$1,079,909
d.	2019	$14,526,168	0%	$0
e.	Total	($2,867,773)		($20,407,819)

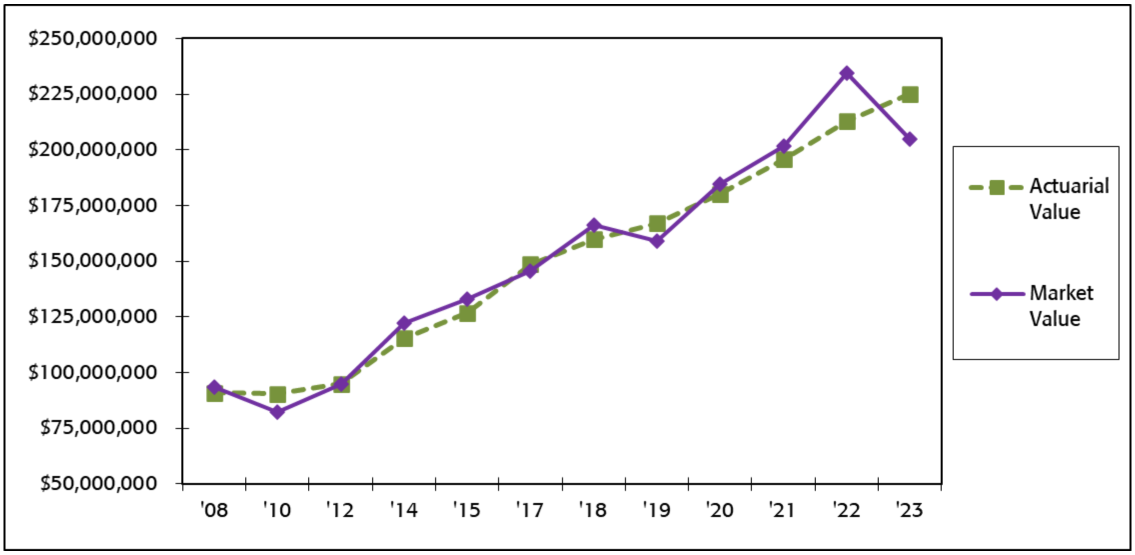
3. Valuation assets without corridor as of 01/01/2023 (1. - 2.e.) — $ 225,252,027

4. Corridor Check
   a. 90% of Market Value — $ 184,359,787
   b. 110% of Market Value — $ 225,328,629

5. Valuation assets with corridor as of 01/01/2023 (3. within Corridor) — $ 225,252,027

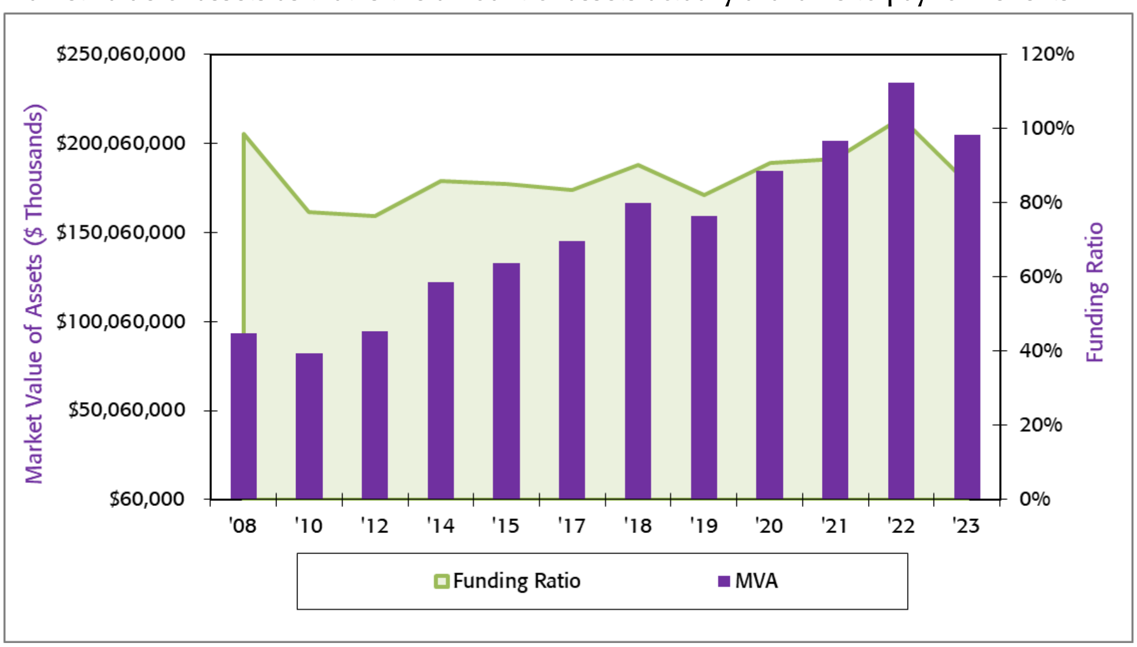
6. Calculation of return on valuation assets
   a. Valuation assets as of 01/01/2022 — $ 212,844,366
   b. ER contribs + EE contribs - Ben Pymts - Expenses — $ (2,035,074)
   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $ 14,442,735
   d. Weighted value of valuation assets — $ 211,826,829
   e. Return on valuation assets (6.c. / 6.d.) — 6.82%
   f. Annualized return on valuation assets — 6.82%

The benefit of using an asset smoothing method is that it results in a more stable measure of the financial condition of the Plan. This is illustrated by the chart below, which displays a history of the Actuarial Value and Market Value of Assets over the past twelve valuations.



Funding Ratio

The following displays the history of the funding ratio for the past twelve valuations, based on Market Value of Assets. The Market Value for each year is shown to accompany the funding ratio. We show the market value of assets as that is the amount of assets actually available to pay for benefits.



<u>Funding ratio as of 1/1/2023:</u>

- 85.4% using Market Value of Assets
- 93.9% using Actuarial Value of Assets

Risk

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as:

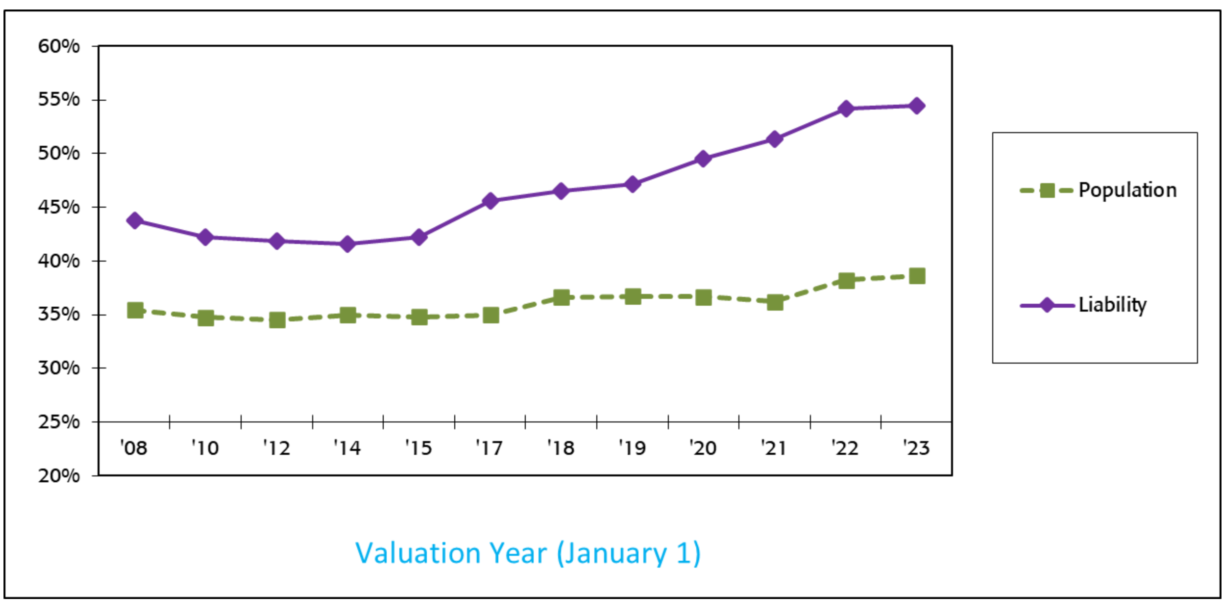
- Plan experience differing from that anticipated by the economic or demographic assumptions,
- Changes in economic or demographic assumptions,
- Increases or decreases expected as part of natural operation of the methodology used for these measurements such as additional contribution requirements based on the plan's funded status,
- Changes in plan provisions or applicable law.

As part of the valuation, we have not performed an analysis of the potential range of future measurements. GASB Statement 67 and 68 reports for the Concord Retirement System contain alternate results to measure the impact of increases or decreases in the discount rate.

Maturity

One important concern is the maturity of the system. Systems with a greater portion of their liability stemming from current retirees whose benefits already being paid are likely to experience greater impact from short-term asset experience, as high payouts in the near future leave less of the current assets available to benefit from investment returns further in the future.

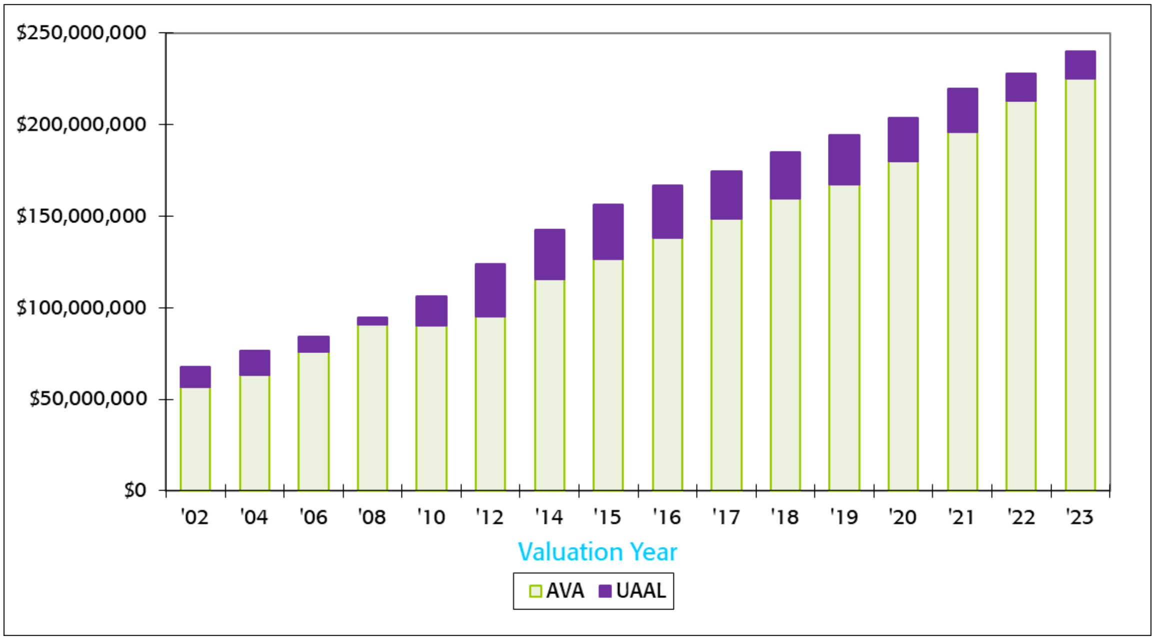
Below is a history of the retiree's percentage of the covered population and liability. The retiree share of the liability has grown over the past twelve valuations, while the retiree share of the population has been fairly stable.



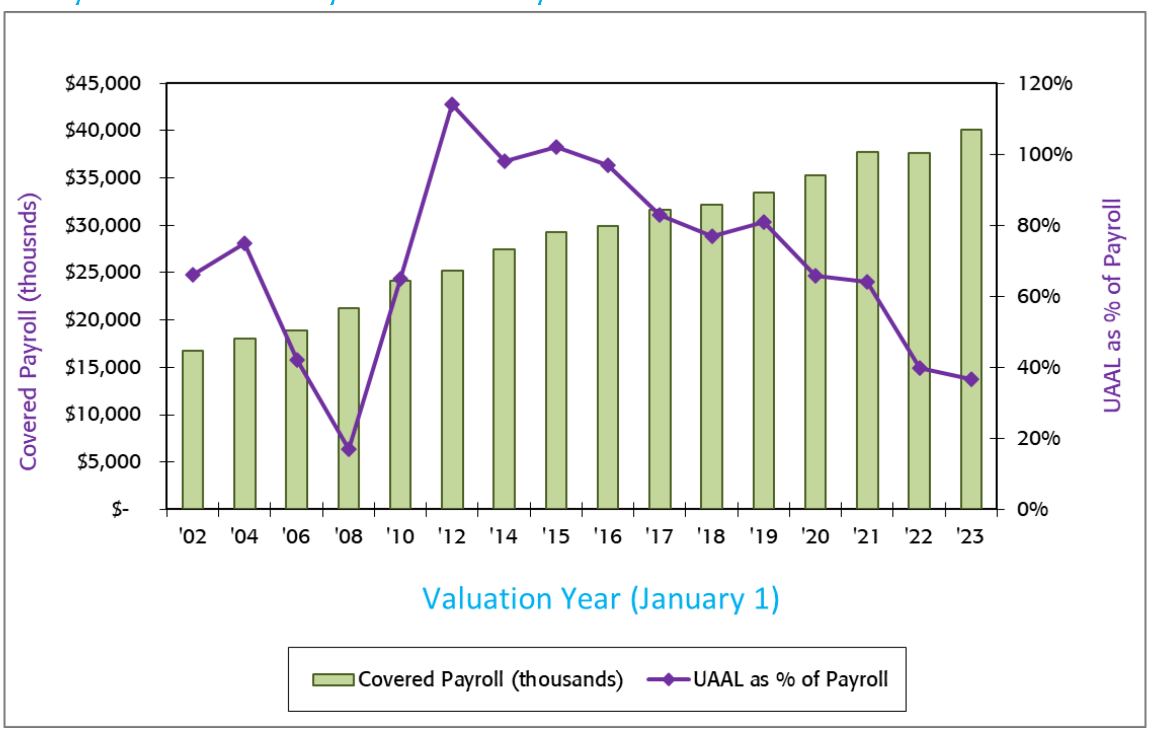
Historical Experience

The following charts display Concord's history of Actuarial Assets and Unfunded Liability; the second chart compares the unfunded liability to covered payroll.

History of Assets and Unfunded Liability



History of Unfunded Liability and Covered Payroll



Comparative Results

	January 1, 2023	January 1, 2022	Percentage Change
Funding			
Contribution for Fiscal 2025	$6,948,976	$6,948,976	0.0%
Members			
▪ Actives			
a. Number	569	567	0.4%
b. Annual Compensation	$40,078,931	$37,668,400	6.4%
c. Average Annual Compensation	$70,437	$66,435	6.0%
d. Average Attained Age	47.9	47.7	0.5%
e. Average Past Service	10.2	10.1	1.1%
▪ Retired, Disabled and Beneficiaries			
a. Number	358	351	2.0%
b. Total Benefits*	$11,977,467	$11,250,526	6.5%
c. Average Benefits*	$33,457	$32,053	4.4%
d. Average Age	73.2	73.2	0.0%
▪ Inactives			
a. Number	242	226	7.1%
Normal Cost			
a. Total Normal Cost as of January 1, 2023	$6,570,247	$6,254,993	5.0%
b. Less Expected Members' Contributions	3,829,949	3,595,340	6.5%
c. Normal Cost to be funded by the Municipality	$2,740,298	$2,659,653	3.0%
d. Adjustment to July 1, 2024	176,537	171,342	3.0%
e. Administrative Expense Assumption	432,864	385,274	12.4%
f. Normal Cost Adjusted to July 1, 2024	$3,349,698	$3,216,269	4.1%
Actuarial Accrued Liability			
a. Active Members	$107,489,539	$102,396,286	5.0%
b. Inactive Members	4,054,129	4,222,130	-4.0%
c. Retired Members and Beneficiaries	128,369,736	121,179,579	5.9%
d. Total	$239,913,404	$227,797,995	5.3%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability	$239,913,404	$227,797,995	5.3%
b. Less Actuarial Value of Assets	225,252,027	212,844,366	5.8%
c. Unfunded Actuarial Accrued Liability	$14,661,377	$14,953,629	-2.0%
d. Adjustment to FY2025	(906,624)	(883,497)	
e. Unfunded Actuarial Accrued Liability as of FY2025	$13,754,753	$14,070,132	

* Excluding State reimbursed COLA

APPENDICES

Appendix A – Actuarial Methods and Assumptions

All assumptions and methodologies were either set by statute or selected by the Concord Retirement Board in conjunction with guidance provided by Stone Consulting, Inc.

Stone Consulting, Inc. was furnished member and financial data by the Concord Retirement System's administrative staff. Although examined under broad parameters for reasonableness, the data was not audited by the actuary. With the assistance of the staff of the Concord Retirement Board, we were able to develop a database sufficient for valuation purposes.

ASSUMPTION AND METHODOLOGY CHANGES SINCE PRIOR VALUATION

- COLA Base: a 5% increase was granted on a Base of $14,000 for FY23; in future years a 3% increase will be granted
    - This increased the liability by $797 thousand
- All other assumptions and methods were maintained from the prior valuation.

ACTUARIAL METHODS

Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

Asset Valuation Method

Market Value of Assets, adjusted for payables and receivables, adjusted to phase in investment gains compared to the expected market value and losses evenly over four years (shown on page 14). The asset valuation method adjusts the results to no less than 90% and no more than 110% of the market value of assets adjusted for payables and receivables.

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2025. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

Actuarial Methods and Assumptions (Continued)

ACTUARIAL ASSUMPTIONS

Valuation Date

January 1, 2023.

Investment Return

6.50% per year net of investment expenses.

The investment return assumption is a long-term assumption and is based on capital market expectations by asset class, historical returns, and professional judgement.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Cost-of-Living Increases

A 5% COLA on the first $14,000 of a member's retirement allowance is assumed to be granted for FY2023, with 3% increases for all future years.

Salary Increases

Select and Ultimate. 4.00% ultimate rate; 3.25% base rate while receiving the following steps:

- Group 1 and 2: 2.5% for the first 10 years of service
- Fire: 4.7% for the first three years of service
- Police: 5.2%% in year 1, 5.6% in year 2, 7.3% in year 3, 5.0% in year 4, 4.8% in year 5. 2.0% in year 6

Step increases are assumed to be part of the salary increase assumption. The total payroll is assumed to increase at 4.25% per year.

The salary increase assumption reflects prior experience including PERAC's 2002 local experience study, current expectations, and professional judgement.

Actuarial Methods and Assumptions (Continued)

Credited Service

All service is assumed to be due to employment with the municipality.

Family Composition

Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).

Administrative Expenses

Estimated budgeted amount of $432,864 for the Fiscal Year 2025 is added to the Normal Cost. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the discount rate assumption that is net of fees.

Net 3(8)(c)

Net 3(8)(c) payments are assumed to be the same level as the past calendar year for all future years.

Contribution Timing

Contributions are assumed to be made at the beginning of the fiscal year.

In-Service Disability and Death

Both Disability and In-Service Death are assumed to be 45% ordinary and 55% accidental for Group 1 and 2, and 10% ordinary and 90% accidental for Group 4.

Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

Rate of Withdrawal

Service	Group 1 and 2	Group 4
0	15%	1.5%
1	12%	1.5%
2	10%	1.5%
3	9%	1.5%
4	8%	1.5%
5	7.6%	1.5%
10	5.4%	1.5%
15	3.3%	0.0%
20	2.0%	0.0%
25	1.0%	0.0%
30+	0.0%	0.0%

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

Rate of Disability

Age	Group 1 and 2	Group 4
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

Actuarial Methods and Assumptions (Continued)

Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved 10 years of service:

				Hired after 4/1/2012		
Age	Group 1& 2 Male	Group 1 & 2 Female	Group 4	Group 1& 2 Male	Group 1 & 2 Female	Group 4
50	1%	1.5%	2%	0%	0%	0%
51	1%	1.5%	2%	0%	0%	0%
52	1%	2.0%	2%	0%	0%	0%
53	1%	2.5%	2%	0%	0%	0%
54	2%	2.5%	7.5%	0%	0%	0%
55	2%	5.5%	15%	0%	0%	10%
56	2.5%	6.5%	10%	0%	0%	7%
57	2.5%	6.5%	10%	0%	0%	20%
58	5%	6.5%	10%	0%	0%	10%
59	6.5%	6.5%	15%	0%	0%	15%
60	12%	5%	20%	25%	30%	20%
61	20%	13%	20%	20%	13%	20%
62	30%	15%	25%	30%	15%	25%
63	25%	12.5%	25%	25%	12.5%	25%
64	22%	18%	30%	22%	18%	30%
65	40%	15%	100%	40%	15%	100%
66	25%	20%	N/A	25%	20%	N/A
67	25%	20%	N/A	25%	20%	N/A
68	30%	25%	N/A	30%	25%	N/A
69	30%	20%	N/A	30%	20%	N/A
70	100%	100%	N/A	100%	100%	N/A

Mortality

RP-2014 table adjusted to 2006 and projected generationally with MP-2021 (sex-distinct). During employment the healthy employee mortality table is used. Post-employment, the healthy annuitant table is used.

Mortality for disabled retirees follows the same table as non-disabled retirees, set forward 2 years. Death is assumed to be due to the same cause as the disability 40% of the time.

Appendix B – Summary of Principal Provisions

1. PARTICIPANT

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

- Group 1: general employees
- Group 2: employees in specified hazardous occupations (e.g., electricians)
- Group 4: police and firefighters

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members hired after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

Summary of Principal Provisions (Continued)

5. SERVICE RETIREMENT

a. Eligibility

<u>Hired prior to April 2, 2012:</u>

- Attainment of age 55 and completion of ten years of credited service,
- or at any age with completion of 20 years of service.
- If hired prior to 1978 or a member of Group 4, the completion of ten years of service is not required.

<u>Hired after April 1, 2012:</u>

- Group 1 – Age 60 and Completion of 10 years of credited service;
- Group 2 – Age 55 and completion of 10 years of service;
- Group 4 – Age 55.

b. Retirement Allowance

Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45
	Hired after April 1, 2012*		
2.5%	67+	62+	57+
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

*Reduction is .125% for each year early instead of .15% per year for employees with over 30 years of service.

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years

Summary of Principal Provisions (Continued)

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section above with the member eligible to start collecting a benefit at age 55, (or age 57 for post-April 1, 2012 hires) or defer until later at his or her discretion. If a member chooses, his or her contributions with interest may be withdrawn. The amount of interest he or she will receive depends on length of service and whether or not the termination of employment was voluntary.

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

Non-job related disability after completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section and calculated as if the member had attained age 55 (or age 57 for those hired after April 1, 2012), if younger. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

Disabled as a result of an accident in the performance of duties. No age or service requirement.

b. Retirement Allowance

72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

Summary of Principal Provisions (Continued)

9. NON-OCCUPATIONAL DEATH

a. Eligibility

Dies while in active service, but not due to occupational injury. 2 years of service.

b. Retirement Allowance

Benefit as if Option C had been elected (see below) and member had attained age 55 (or age 57 for those hired after April 1, 2012) if younger.

Minimum monthly benefits provided as follows:
- spouse - $500,
- first child - $120,
- each additional child - $90

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

72% of pay plus refund of annuity savings fund balance. In the case of an accidental disability retiree who dies of the same cause, the beneficiary receives 72% of the last 12 months salary or the current pension amount, whichever is greater.

11. COST-OF-LIVING INCREASES

An increase of up to 5% applied to the first $14,000 of annual benefit for FY2023, with 3% increases in all future years. Funded by the Employer from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A: Allowance payable monthly for the life of the member.
- Option B: Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.
- Option C: Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

Appendix C – Glossary of Terms

- **Actuarial Accrued Liability**
  The portion of the Present Value of Benefits that is attributable to past service.

- **Actuarial Value of Assets**
  The value of assets based on the asset valuation method shown in the Actuarial Methods and Assumptions section of this report.

- **Actuarial Assumptions**
  Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.

- **Actuarial Cost Method**
  The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.

- **Funding Ratio**
  The percentage of the accrued liability that is covered by the Actuarial Value of Assets.

- **GASB**
  Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).

- **Normal Cost**
  The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.

- **PERAC**
  Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.

- **Present Value of Benefits**
  Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.

- **PRIT**
  Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.

- **Unfunded Actuarial Accrued Liability**
  That portion of the Actuarial Accrued Liability not covered by System Assets.

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2023

The normal cost for employees on that date was:	$3,829,949	9.6%	of payroll
The normal cost for the employer was:	$2,740,298	6.8%	of payroll

The actuarial liability for active members was:	$107,489,539
The actuarial liability for retired members was (includes inactives):	$132,423,865
Total actuarial accrued liability:	$239,913,404
System assets as of that date ($204,886,987.44 Market Value):	$225,252,027
Unfunded actuarial accrued liability:	$14,661,377

The ratio of system's assets to total actuarial liability was:	94%

As of that date the total covered employee payroll was:	$40,078,931

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

Investment Return:	6.50% per annum
Rate of Salary Increase:	Select and ultimate rate (4.00% ultimate rate)

SCHEDULE OF FUNDING PROGRESS (Dollars in $000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2023	$225,252	$239,913	$14,661	94%	$40,079	37%
1/1/2022	$212,844	$227,798	$14,954	93%	$37,668	40%
1/1/2021	$195,685	$219,827	$21,142	89%	$37,708	64%
1/1/2020	$180,248	$203,474	$23,225	89%	$35,272	66%
1/1/2019	$167,095	$194,115	$27,020	86%	$33,406	81%

Concord Retirement System

Rollup of Unfunded Actuarial Liability to July 1, 2024

Valuation Date January 1, 2023

	Water	Sewer	Electric Light	Swim & Fitness	All Others	Total
Accrued Liability as of January 1, 2023	$6,033,180	$1,508,295	$23,653,195	$2,331,592	$206,387,142	$239,913,404
Gross Normal Cost as of January 1, 2023	98,037	24,509	744,356	58,719	5,644,626	6,570,247
Expected Employee Contributions during 2023	81,047	20,262	425,809	36,618	3,266,215	3,829,949
Expected Benefit Payouts excluding State Reimbursed COLA during 2023	165,239	41,310	1,051,998	47,960	10,670,959	11,977,467
Actuarial Value of Assets as of December 31, 2022	$5,664,485	$1,416,121	$22,207,722	$2,189,106	$193,774,592	$225,252,027
Unfunded Actuarial Accrued Liability as of July 1, 2024[1]	$311,617	$77,904	$1,436,028	$136,102	$11,793,101	$13,754,753
Funding Ratio as of January 1, 2023	94%	94%	94%	94%	94%	94%

[1] Rolled up from the unfunded actuarial accrued liability at 1/1/2023 of $14,661,377

Concord Retirement System

DEPARTMENT BREAKDOWN OF FISCAL 2025 CONTRIBUTION

	Water	Sewer	Electric Light	Swim & Fitness	All Others[3]	Total
1. Amortization	$ 78,799	$ 19,700	$ 363,132	$34,417	$ 2,982,152	$ 3,478,200
2. Net Normal Cost Fiscal 2025 including Administrative Expense[1]	24,544	6,136	388,108	27,394	2,903,516	$ 3,349,698
3. Net 3(8)(c) payments[2]	3,045	761	11,936	1,177	104,159	121,078
4. Fiscal 2025 Appropriation (1+2)	$ 106,388	$ 26,597	$ 763,176	$ 62,988	$ 5,989,827	$ 6,948,976

[1] Net Normal Cost for Fiscal 2025 plus administrative expense which is allocated by gross normal cost.
[2] Net 3(8)(c) payments allocated by actuarial accrued liability.
[3] All Others includes the Concord Housing Authority.

stoneconsulting,inc