January 1, 2023

Actuarial Valuation Report

Leominster Retirement System

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December 12, 2023

Leominster Retirement Board
City Hall, Room 15
25 West Street
Leominster, MA 01453

To the Leominster Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2023 actuarial valuation of the Leominster Retirement System. The 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 City of Leominster and the Leominster 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 City of Leominster or the Leominster 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., 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 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 Leominster 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 Leominster Retirement System is no longer fully funded as of January 1, 2023, due to significant investment losses in calendar year 2022. The funding schedule is based on an 11-year level amortization of the resulting unfunded liability (finishing in FY2035), with a Fiscal Year 2025 contribution amount of $5,735,705, an increase of $1.3 million from the prior year.

  The funding ratio based on Actuarial Value of Assets decreased from 119% to 98%; Leominster uses Market Value of Assets, adjusted for payables and receivables.

- Assumptions/methodology:

  The 2023 valuation reflects the one-time granting of a 5% COLA increase for FY2023, which increased the Actuarial Accrued Liability by $968 thousand. Assumptions and valuation methodology are discussed in Appendix A, on page 18.

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 17, with prior results included for comparison. The Leominster 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 Leominster Retirement System.

The appropriation for Fiscal 2025 is as follows:

Net Employer Normal Cost for Fiscal 2025 (including admin. expenses)	$	4,574,256
Net 3(8)(c) Payments		193,346
Amortization		968,103
Timing Adjustment*		0
Total Appropriation required for Fiscal 2025	$	5,735,705

* 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 funding schedule amortizes the June 30, 2024 unfunded liability over 11 years, with a level amortization. The contribution for FY25 is set to be the sum of said amortization with the Net Normal Cost, and the Net 3(8)(c) payments, as chosen by the Board.

The schedule is shown on the following page.

FUNDING SCHEDULE

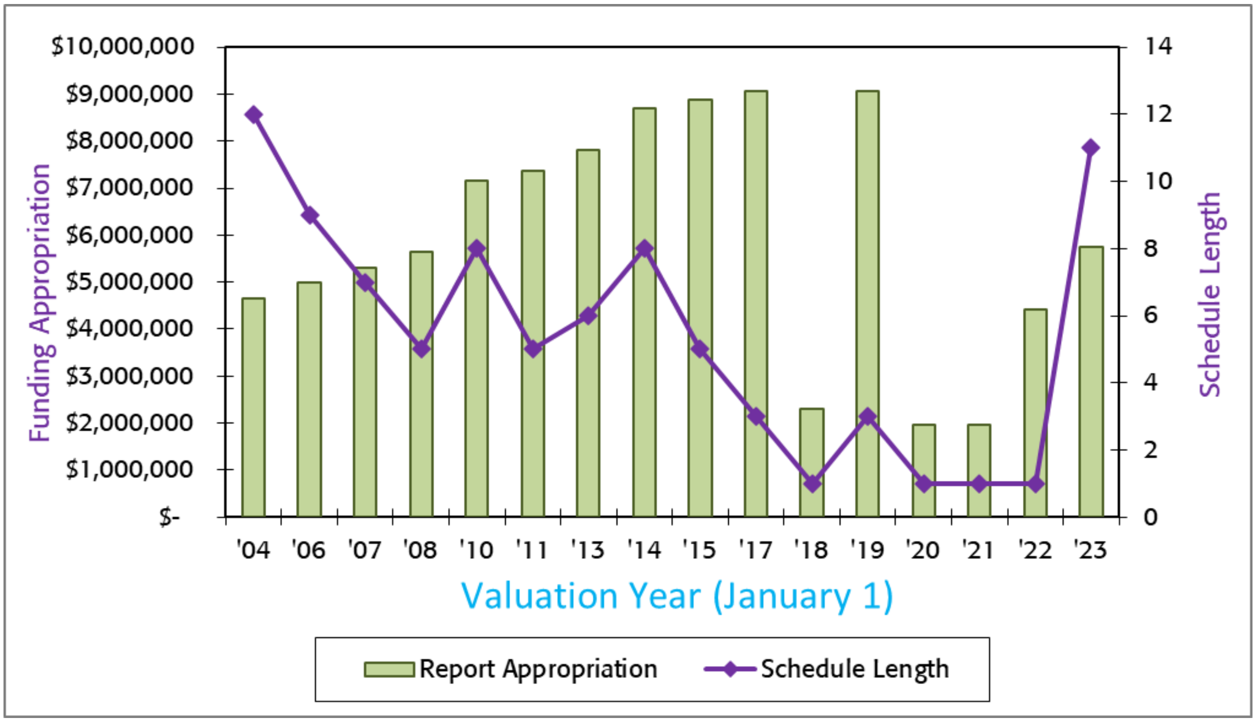
Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution
2025	4,574,256	8,265,300	968,103	193,346	5,735,705
2026	4,745,791	7,698,543	968,103	193,346	5,907,240
2027	4,923,758	7,100,615	968,103	193,346	6,085,207
2028	5,108,399	6,469,800	968,103	193,346	6,269,848
2029	5,299,964	5,804,290	968,103	193,346	6,461,413
2030	5,498,712	5,102,178	968,103	193,346	6,660,162
2031	5,704,914	4,361,449	968,103	193,346	6,866,363
2032	5,918,848	3,579,980	968,103	193,346	7,080,298
2033	6,140,805	2,755,530	968,103	193,346	7,302,254
2034	6,371,085	1,885,736	968,103	193,346	7,532,535
2035	6,610,001	968,103	968,103	193,346	7,771,450
2036	6,857,876	-	-	193,346	7,051,222

Amortization of Unfunded Liability as of July 1, 2024

Starting Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2025	Fresh Start	968,103	0.00%	11	968,103	11

History of Funding Effort

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

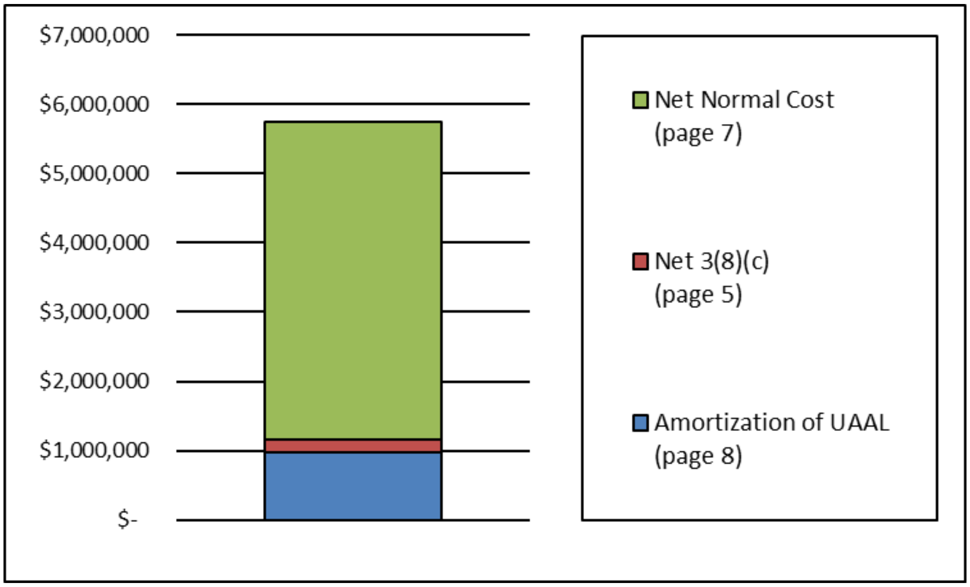


The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

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 Leominster Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system.

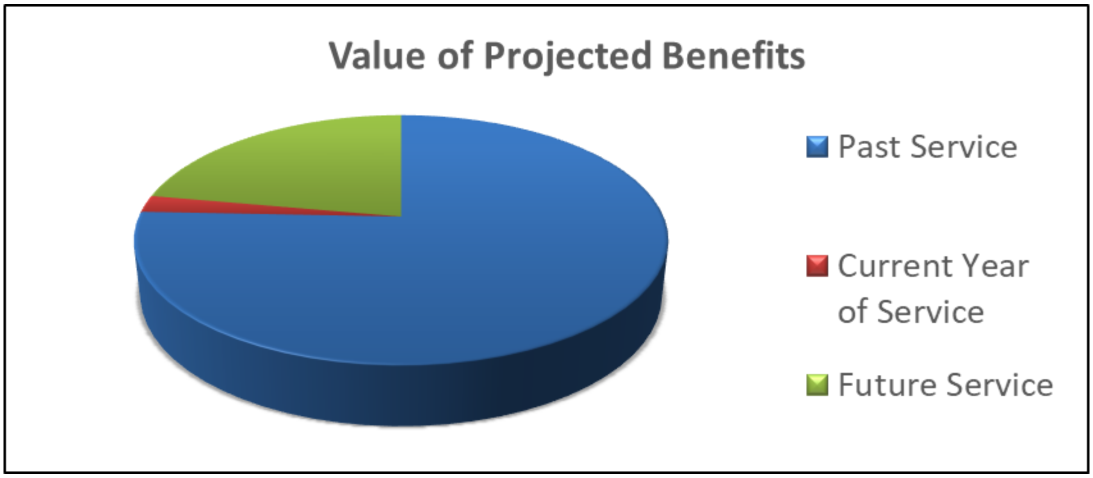
- The net amount is equal to what Leominster pays out, less what Leominster receives from other systems, based on the most recent PERAC annual statement:

3(8)(c) payments made to other systems	$	360,397
3(8)(c) payments received from other systems		(167,051)
Net payments in funding schedule	$	193,346

- 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.

- Past service: 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.

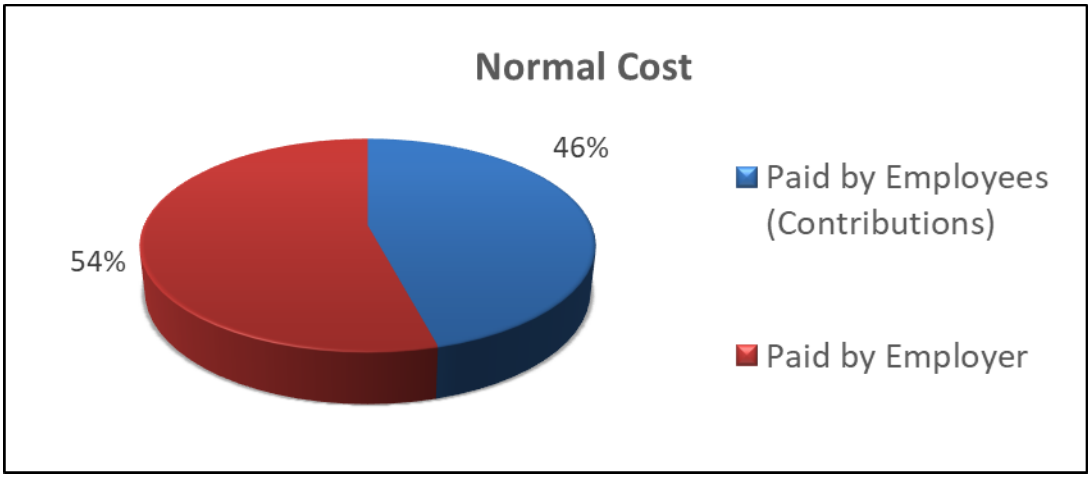
- Current year: The "price" of benefits being earned during the current year is referred to as the Normal Cost (NC). This includes only the actives, as neither inactives nor retirees are earning any additional service.

- Future service: 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 Normal Cost is not borne solely by the employers; 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)	$ 7,533,278	20.8%
Employees Contribution	3,453,665	9.5%
Net Normal Cost (NNC)	$ 4,079,613	11.3%
Adjustment to beginning of Fiscal Year 2025**	231,616	
Administrative Expense	263,027	0.7%
Adjusted Net Normal Cost With Admin. Expense	$ 4,574,256	

* Payroll paid in 2022 for employees as of January 1, 2023 is $36,169,558. 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 3.75%.

Unfunded Liability

The Unfunded Actuarial Accrued Liability (UAAL) is the portion of the AAL that is not covered by the value of the plan assets.

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	$ 105,398,142
b. Inactive Members	3,156,023
c. Retired Members and Beneficiaries	155,246,697
d. Total	$ 263,800,862
Unfunded Actuarial Accrued Liability	
a. Actuarial Accrued Liability	$ 263,800,862
b. Less Actuarial Value of Assets	258,200,882
c. Unfunded Actuarial Accrued Liability	$ 5,599,979
d. Adjustment to FY2025	2,665,321
e. Unfunded Actuarial Accrued Liability as of FY2025	$ 8,265,300

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 and unrecognized gains/losses, 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	$ 95,500,902
Death	2,177,355
Disability	6,287,194
Withdrawal	1,432,691
TOTAL	$ 105,398,142

Demographic Results

Actives	
a. Number	675
b. Annual Compensation	$36,169,558
c. Average Annual Compensation	$53,585
d. Average Attained Age	43.9
e. Average Past Service	9.2
Retired, Disabled and Beneficiaries	
a. Number	439
b. Total Benefits (excluding State COLA)	$12,893,670
c. Average Benefits	$29,371
d. Average Age	72.4
Inactives	
a. Number	360

- Total compensation changed by 7.8% over the prior valuation
  - Average annual compensation changed by 3.2%
  - Salary loss of $777 thousand compared to projected experience

History of Demographic Statistics

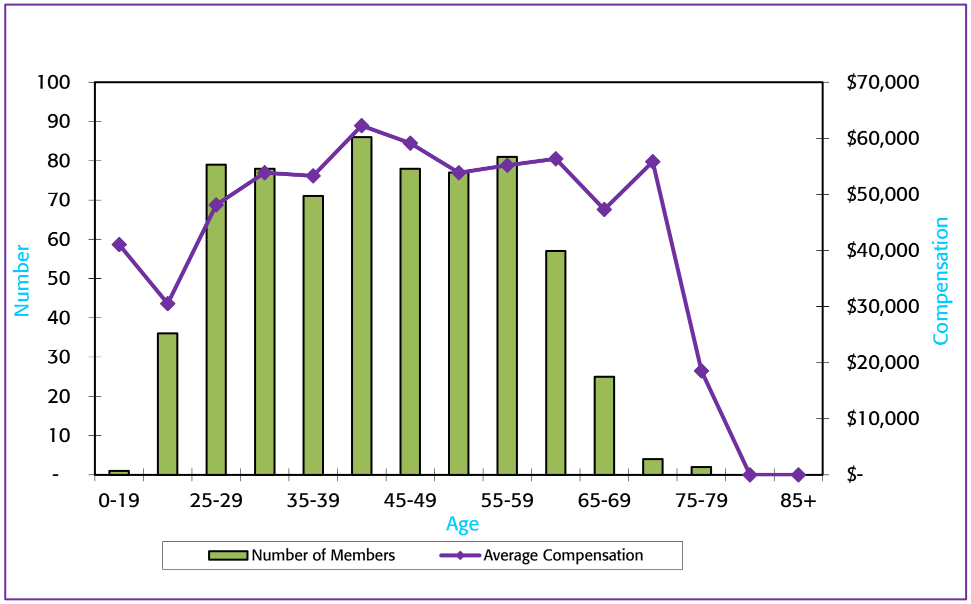
Valuation Year	Actives	Average Age	Average Past Service	Average Ann'l Pay
2023	675	43.9	9.2	$53,585
2022	646	44.3	9.7	$51,918
2021	607	45.2	10.5	$51,809
2020	665	43.9	9.6	$47,699
2019	650	44.4	9.9	$46,336
2018	611	45.4	11.0	$47,153
2017	633	45.7	11.4	$45,900
2015	619	45.8	11.6	$44,267
2014	592	46.5	12.2	$44,198
2013	577	46.9	12.3	$43,060
2011	530	46.9	12.4	$42,279
2010	581	46.5	11.6	$42,004
2008	632	45.7	10.6	$37,231
2007	616	45.7	10.8	$36,973
2006	660	45.0	10.0	$33,498
2004	613	45.4	10.2	$33,700
2001	610	44.3	9.6	$29,800

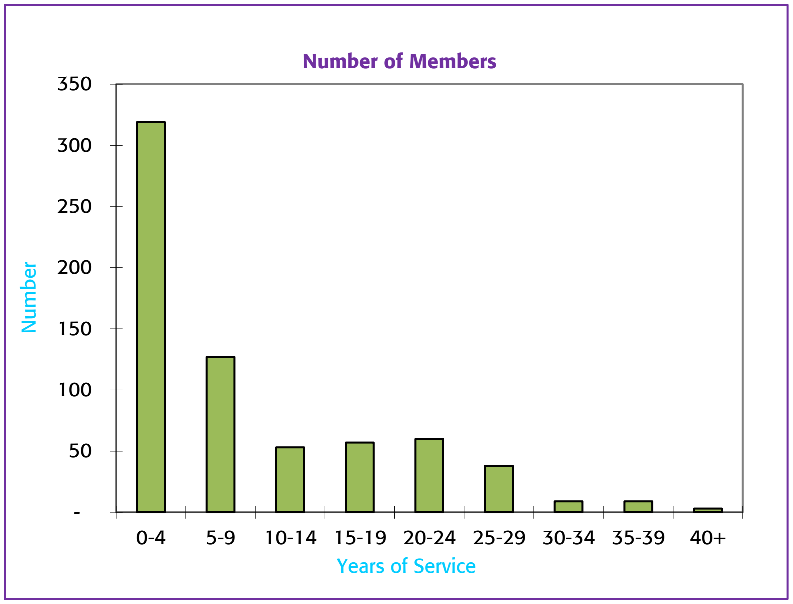
- Average annual compensation has grown by 79.8% (2.7% annually) over the past twenty-two years.

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	1	-	-	-	-	-	-	-	-	1	$ 41,062	$ 41,062
20-24	36	-	-	-	-	-	-	-	-	36	$ 1,099,288	$ 30,536
25-29	76	3	-	-	-	-	-	-	-	79	$ 3,802,691	$ 48,135
30-34	50	24	4	-	-	-	-	-	-	78	$ 4,202,345	$ 53,876
35-39	40	24	6	1	-	-	-	-	-	71	$ 3,786,132	$ 53,326
40-44	33	21	16	12	4	-	-	-	-	86	$ 5,354,493	$ 62,262
45-49	22	14	6	16	16	4	-	-	-	78	$ 4,611,051	$ 59,116
50-54	28	14	6	11	8	9	1	-	-	77	$ 4,146,663	$ 53,853
55-59	14	16	6	10	11	12	7	5	-	81	$ 4,471,655	$ 55,206
60-64	15	8	4	5	15	6	-	2	2	57	$ 3,211,613	$ 56,344
65-69	4	3	5	1	4	5	-	2	1	25	$ 1,182,229	$ 47,289
70-74	-	-	-	1	2	1	-	-	-	4	$ 223,251	$ 55,813
75-79	-	-	-	-	-	1	1	-	-	2	$ 37,086	$ 18,543
80-84	-	-	-	-	-	-	-	-	-	-	$ -	$ -
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	319	127	53	57	60	38	9	9	3	675	$ 36,169,558	$ 53,585





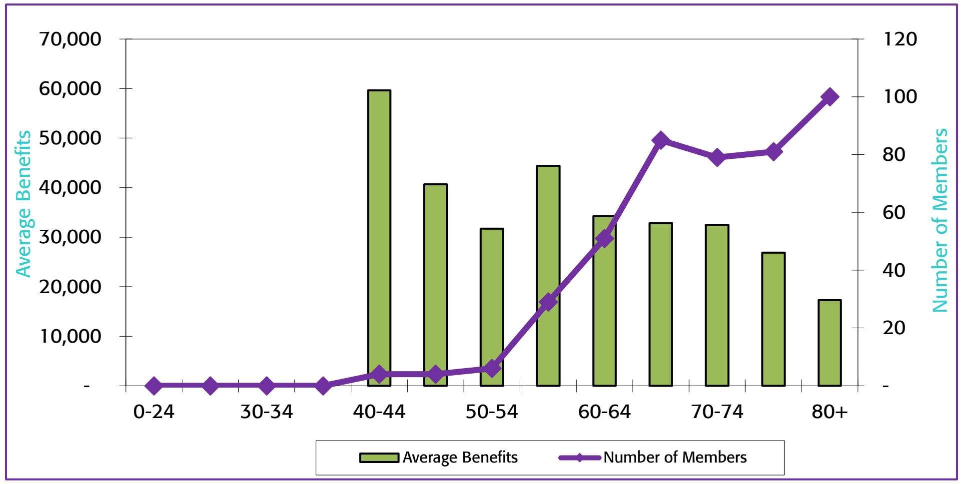
Distribution of Plan Members as of January 1, 2023

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	11,650	11,650
45-49	3	44,355	133,066
50-54	4	27,951	111,805
55-59	20	45,528	910,560
60-64	47	33,084	1,554,930
65-69	76	30,400	2,310,398
70-74	71	31,495	2,236,138
75-79	76	27,200	2,067,168
80+	97	16,984	1,647,436
TOTAL	**395**	**$ 27,805**	**$ 10,983,151**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	3	75,619	226,858
45-49	1	29,626	29,626
50-54	2	39,305	78,611
55-59	9	41,897	377,069
60-64	4	47,977	191,908
65-69	9	53,623	482,607
70-74	8	41,222	329,774
75-79	5	22,431	112,155
80+	3	27,304	81,911
TOTAL	**44**	**$ 43,421**	**$ 1,910,519**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	4	59,627	238,508
45-49	4	40,673	162,692
50-54	6	31,736	190,416
55-59	29	44,401	1,287,629
60-64	51	34,252	1,746,838
65-69	85	32,859	2,793,005
70-74	79	32,480	2,565,912
75-79	81	26,905	2,179,323
80+	100	17,293	1,729,347
TOTAL	**439**	**$ 29,371**	**$ 12,893,670**



Benefits shown are net of State reimbursed COLA.

Assets

	Cash	$	693,058.94
	PRIT FUND		257,586,802.97
A	Sub-Total:	$	258,279,861.91
	Accounts Receivable	$	16,648.14
	Accounts Payable		(2,703.55)
B	Sub-Total:	$	13,944.59
	Market Value of Assets [(A) + (B)]	$	258,293,806.50

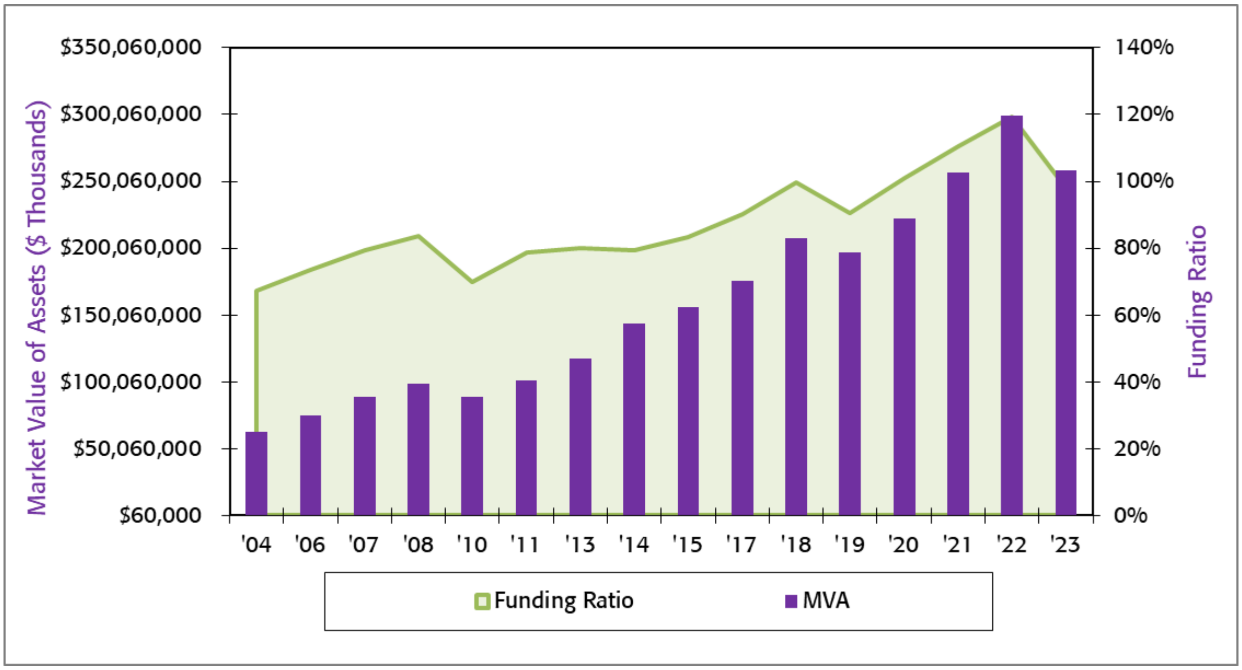
- The asset allocation is approximately 20% fixed income, cash, receivables and payables and 80% equities, alternative investments, hedge funds and similar types of investments.
- Annual return in calendar 2022: -11.4% vs. a 5.50% assumption.
  - $49,862,606 net actuarial asset loss in Calendar Year 2022

Actuarial Value of Assets

For its Actuarial Value of Assets (AVA), Leominster uses Market Value of Assets, adjusted for payables and receivables.

Funding Ratio

The following displays the history of the funding ratio for the past twenty 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.



The funding ratio for 1/1/2023 is 97.9%.

Risk

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

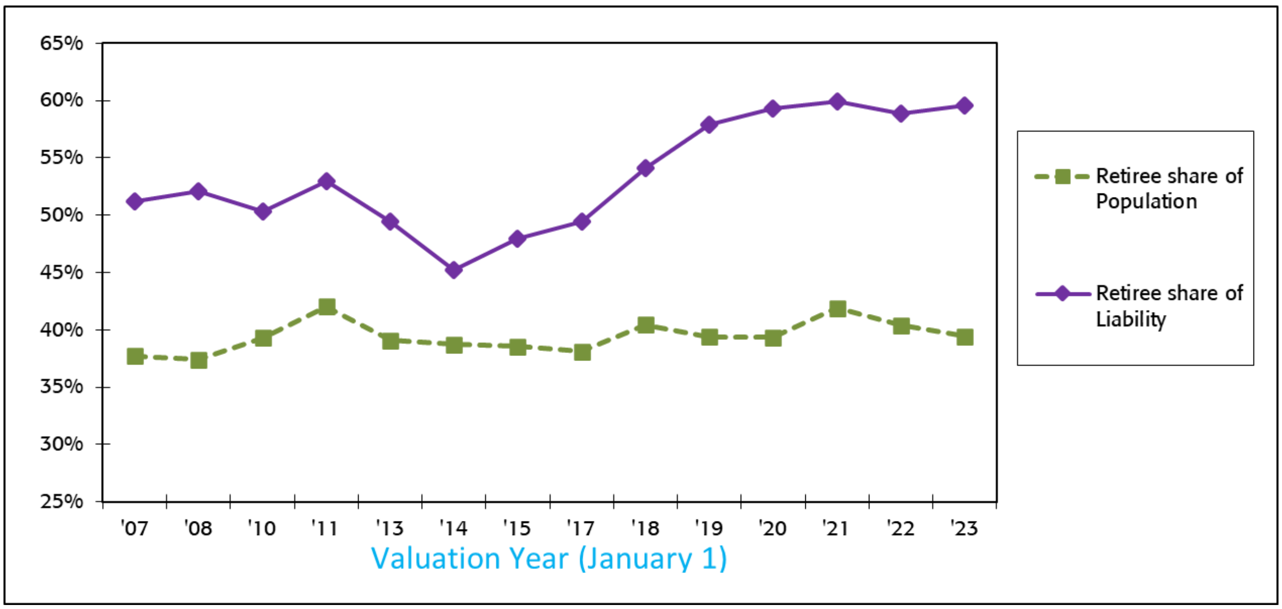
- Plan experience differing from that anticipated by the economic or demographic assumptions,
- Changes in economic or demographic assumptions,
- Increases or decreases expected as part of natural operation of the methodology used for these measurements such as additional contribution requirements based 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 Leominster 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 will be 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. While the retiree share of the population has hovered around 40% over the past several valuations, the retiree portion of liability increased for several years until levelling off after 2020.



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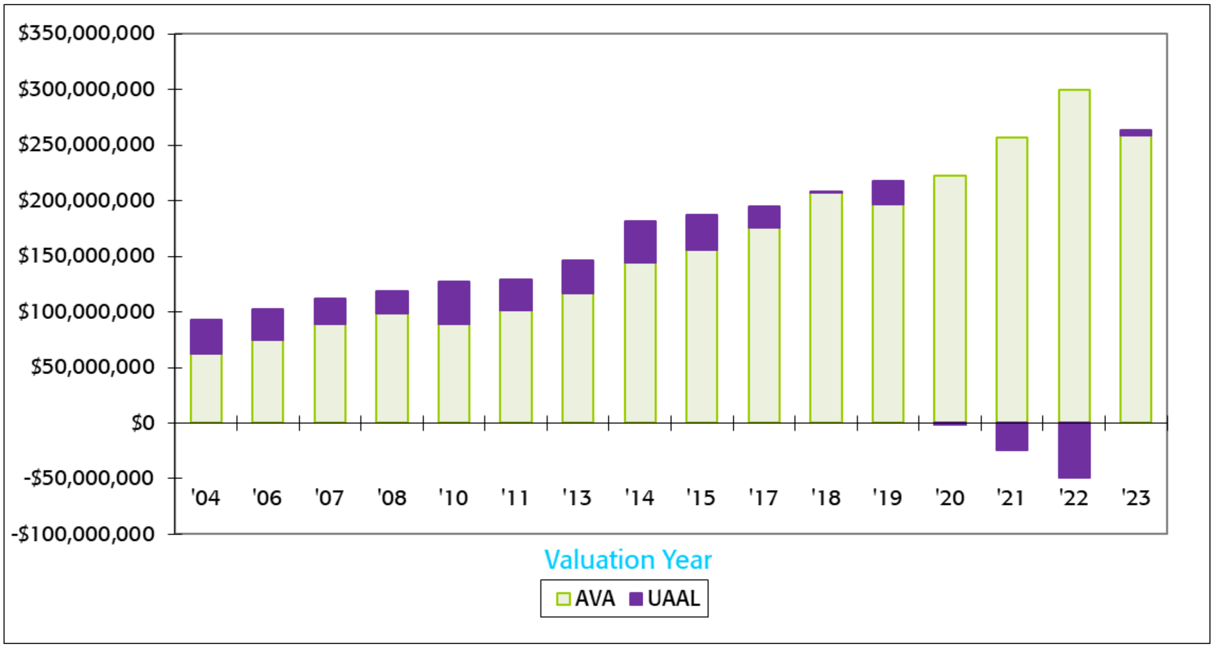
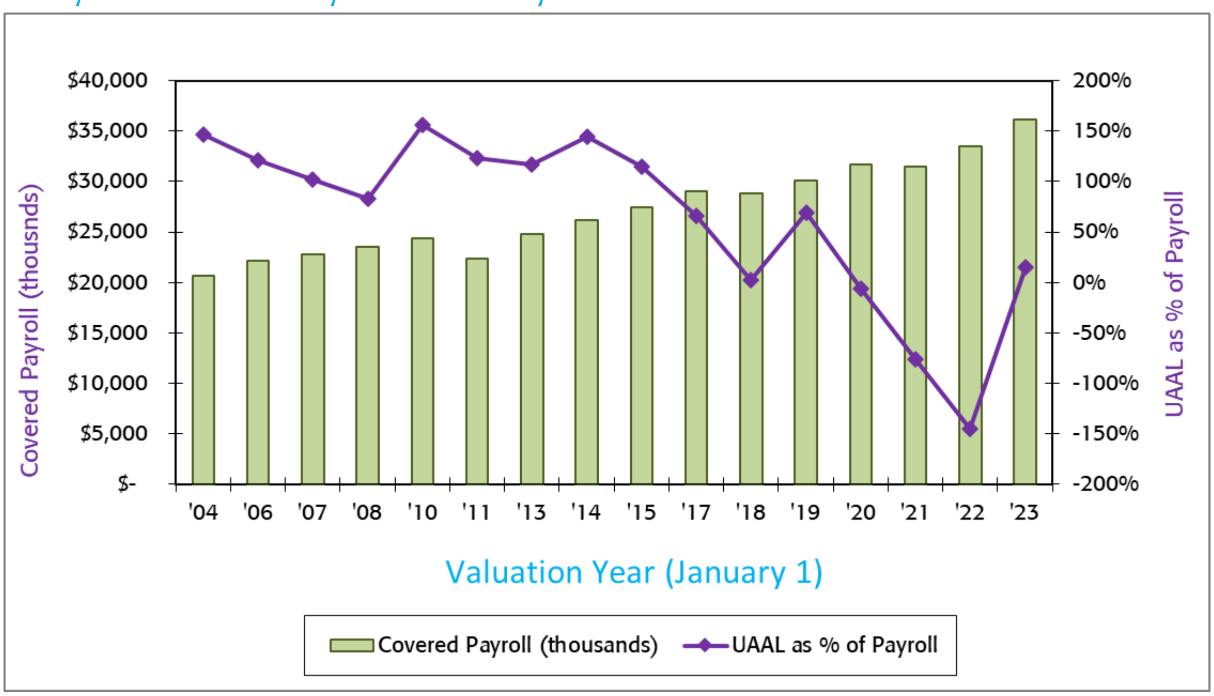
Historical Experience

The following charts display Leominster'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	$5,735,705		
Members			
▪ Actives			
a. Number	675	646	4.5%
b. Annual Compensation	$36,169,558	$33,539,071	7.8%
c. Average Annual Compensation	$53,585	$51,918	3.2%
d. Average Attained Age	43.9	44.3	-0.9%
e. Average Past Service	9.2	9.7	-5.2%
▪ Retired, Disabled and Beneficiaries			
a. Number	439	438	0.2%
b. Total Benefits*	$12,893,670	$12,162,672	6.0%
c. Average Benefits*	$29,371	$27,769	5.8%
d. Average Age	72.4	72.6	-0.3%
▪ Inactives			
a. Number	360	350	2.9%
Normal Cost			
a. Total Normal Cost as of January 1, 2023	$7,533,278	$6,995,437	7.7%
b. Less Expected Members' Contributions	3,453,665	3,185,878	8.4%
c. Normal Cost to be funded by the Municipality	$4,079,613	$3,809,559	7.1%
d. Adjustment to July 1, 2024	231,616	216,284	7.1%
e. Administrative Expense Assumption	263,027	253,520	3.8%
f. Normal Cost Adjusted to July 1, 2024	$4,574,256	$4,279,363	6.9%
Actuarial Accrued Liability			
a. Active Members	$105,398,142	$101,894,773	3.4%
b. Inactive Members	3,156,023	3,094,952	2.0%
c. Retired Members and Beneficiaries	155,246,697	145,826,110	6.5%
d. Total	$263,800,862	$250,815,835	5.2%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability	$263,800,862	$250,815,835	5.2%
b. Less Actuarial Value of Assets	258,200,882	299,510,077	-13.8%
c. Unfunded Actuarial Accrued Liability	$5,599,979	$(48,694,243)	-111.5%
d. Adjustment to FY2025	2,665,321	(166,878)	
e. Unfunded Actuarial Accrued Liability as of FY2025	$8,265,300	$(48,861,121)	

* Excluding State reimbursed COLA

APPENDICES

Appendix A – Actuarial Methods and Assumptions

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

Stone Consulting, Inc. was furnished member and financial data by the Leominster 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 Leominster Retirement Board, we were able to develop a database sufficient for valuation purposes.

ASSUMPTION AND METHODOLOGY CHANGES SINCE PRIOR VALUATION

- COLA increase: 5% increase on a $13,000 Base for FY2023; 3% increases in subsequent years
  - The prior valuation used only 3% increases
  - This increased the liability by $968 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.

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

5.50% per year net of investment expenses. This assumption is consistent with the prior valuation. 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 $13,000 of a member's retirement allowance is assumed to be granted for Fiscal Year 2023, with 3% increases in future years.

Salary Increases

Select and Ultimate assumption, based on years of credited service:

Fire:
- 8.75% increases for years 1-2; 5.75% increase in year 3
- 3.75% increases in all other years

Police:
- 8.75% increases for years 1-2; 4.75% increase for year 3; 6.75% increase for year 4
- 3.75% increases in all other years

All Others:
- 7.50% increase in years 1-7
- 3.75% increases in all other years

The payroll increase assumption is 3.75%. 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 $263,027 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. The prior valuation used the same assuming.

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

Hired prior to April 2, 2012:

- 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.

Hired after April 1, 2012:

- 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 60 for group 1 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 $13,000 of annual benefit for Fiscal Year, and 3% for 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:	$3,453,665	9.5% of payroll
The normal cost for the employer was:	$4,079,613	11.3% of payroll

The actuarial liability for active members was:	$105,398,142
The actuarial liability for retired members was (includes inactives):	$158,402,720
Total actuarial accrued liability:	$263,800,862
System assets as of that date ($258,293,806.50 Market Value):	$258,200,882
Unfunded actuarial accrued liability:	$5,599,979

The ratio of system's assets to total actuarial liability was:	98%

As of that date the total covered employee payroll was:	$36,169,558

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

Investment Return:	5.50% per annum
Rate of Salary Increase:	Select and Ultimate (3.75% 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	$258,201	$263,801	$5,600	98%	$36,170	15%
1/1/2022	$299,510	$250,816	$(48,694)	119%	$33,539	-145%
1/1/2021	$256,935	$232,880	$(24,055)	110%	$31,448	-76%
1/1/2020	$222,538	$220,643	$(1,895)	101%	$31,720	-6%
1/1/2019	$196,807	$217,800	$20,993	90%	$30,118	70%