January 1, 2023

Actuarial Valuation Report

Lexington Retirement System

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October 30, 2023

Lexington Retirement Board
1625 Massachusetts Ave.
Lexington, MA 02420

To the Lexington Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2023 actuarial valuation of the Lexington 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 our best estimate of anticipated experience of the system except where noted in the text.

Stone Consulting, Inc. is completely independent of Lexington and the Lexington Retirement System. This includes any of its officers and key personnel. Neither we or anyone else closely associated with us has any relationship with Lexington or the Lexington 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 System

Colin Edgar
Member, American Academy of Actuaries

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Report Summary

This report presents the results of the actuarial valuation of the Lexington 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 contribution is set to increase by $777 thousand in the first year, followed by $750,000 increases I subsequent years, with the exception of the final year, when the contribution decreases by $4.7 million. The schedule is 6 years long, finishing in FY2030, consistent with the schedule from the prior valuation report.

- Assumptions/methodology:

  This valuation included an update of the mortality projection scale from MP-2020 to MP-2021, which increased the accrued liability by $471 thousand. A one-time COLA increase of 5% for FY23 was also reflected, increasing the accrued liability by $1.0 million.

  Assumptions and valuation methodology are discussed in Appendix A, on page 16.

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, and the funding schedule components.
- Full actuarial valuation results are shown on page 15, with prior results included for comparison. The Lexington Retirement Board conducted their previous actuarial valuation effective January 1, 2021.

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 related to service that a retiree has earned with a different retirement system than they retired from.

The appropriation for Fiscal 2025 is as follows:

Net Employer Normal Cost for Fiscal 2025 (including admin. expenses)	$	2,060,824
Net 3(8)(c) Payments		269,304
Amortization		8,254,130
Timing Adjustment*		279,405
Total Appropriation required for Fiscal 2025	$	10,863,663

* Contributions are assumed to be made quarterly.

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

- The schedule's length is six (6) years which is consistent with the 6 years remaining from the schedule in the January 1, 2021 valuation. The maximum funding schedule length allowed by Section 22D of Chapter 32 of the Massachusetts General Laws is eight years to Fiscal 2030.
- Lexington's funding schedule was developed by setting the contribution to increase by $777 in the first year and $750 thousand in subsequent years, except for the final year, when it decreases by $4.7 million.

The schedule is shown on the following page.

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution	Adjusted Payments
2025	2,060,824	45,509,626	8,254,130	269,304	10,584,258	10,863,663
2026	2,153,561	39,956,520	8,892,103	269,304	11,314,968	11,613,663
2027	2,250,471	33,316,586	9,525,904	269,304	12,045,679	12,363,663
2028	2,351,743	25,515,507	10,155,343	269,304	12,776,389	13,113,663
2029	2,457,571	16,473,776	10,780,225	269,304	13,507,100	13,863,663
2030	2,568,162	6,106,334	6,106,334	269,304	8,943,799	9,179,899
2031	2,683,729	-	-	269,304	2,953,033	3,030,987

Amortization of Unfunded Liability as of July 1, 2024

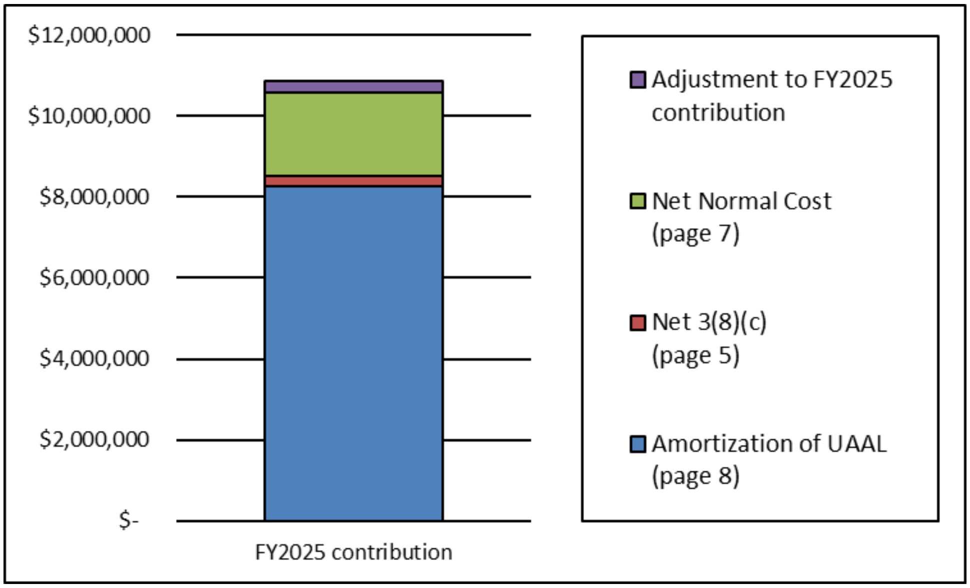
Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2025	Fresh Start	N/A	N/A	6	N/A	6

The contribution for FY25 is set to increase by $777 thousand from the prior year, with future contributions increasing by $750 thousand each year. In the final year (FY2030), the contribution decreases by $4.7 million.

Components of Funding Appropriation

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.



Net 3(8)(c) Payments

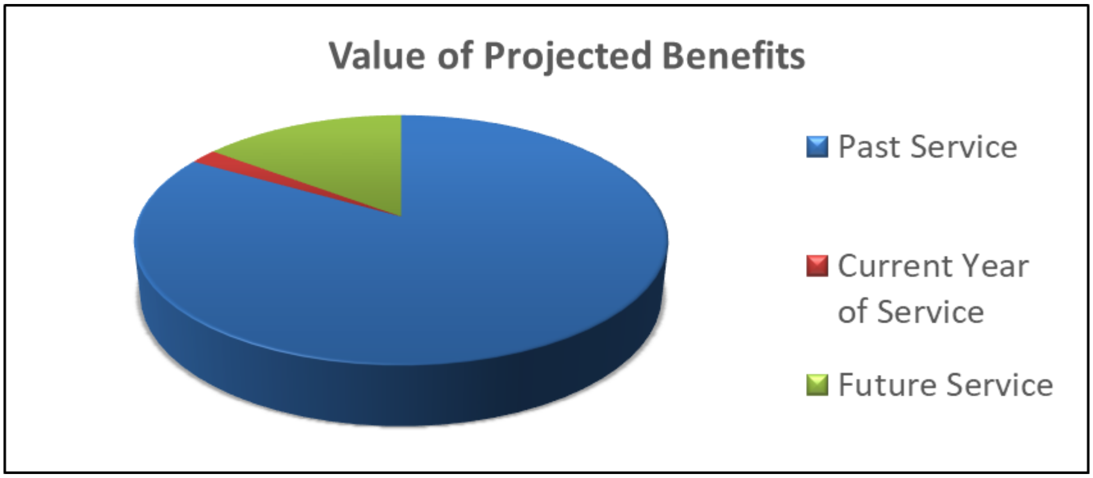
- 3(8)(c) payments are benefits which the Lexington Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system.
- The net amount is equal to what Lexington pays out, less what Lexington receives from other systems, based on the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

3(8)(c) payments made to other systems	$	900,214
3(8)(c) payments received from other systems		(630,910)
Net payments in funding schedule	$	269,304

- 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.

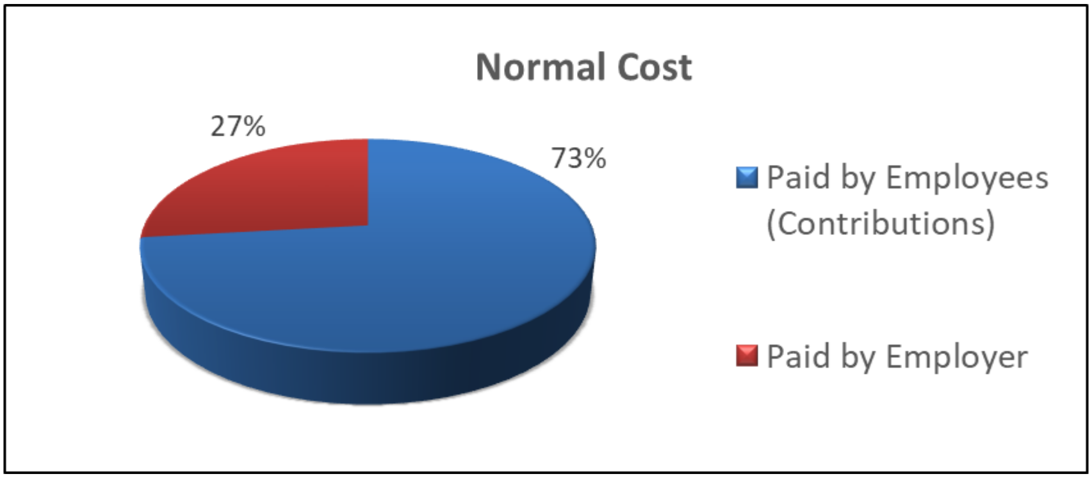
- Current year: The "price" of benefits being earned during the current year is referred to as the Normal Cost (NC). This includes only the actives, as neither inactives nor retirees are earning any additional service.

- 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 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)	$ 6,180,388	12.9%
Employees Contribution	4,523,908	9.4%
Net Normal Cost (NNC)	$ 1,656,480	3.4%
Adjustment to beginning of Fiscal Year 2025**	113,061	
Administrative Expense	291,283	0.6%
Adjusted Net Normal Cost With Admin. Expense	$ 2,060,824	

* Payroll paid in 2022 for employees as of January 1, 2023 is $48,050,890. 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 payroll increase factor of 4.50%.

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	$ 114,415,014
b. Inactive Members	4,815,909
c. Retired Members and Beneficiaries	149,923,583
d. Total	$ 269,154,506
Unfunded Actuarial Accrued Liability	
a. Actuarial Accrued Liability	$ 269,154,506
b. Less Actuarial Value of Assets	221,428,862
c. Unfunded Actuarial Accrued Liability	$ 47,725,644
d. Adjustment to FY2025	(2,216,018)
e. Unfunded Actuarial Accrued Liability as of FY2025	$ 45,509,626

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. This can result in a schedule in which the changes in contribution amounts from year to year are more consistent.

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, either withdrawing or retaining their Annuity Savings Fund balance

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	$ 104,486,837
Death	2,704,715
Disability	4,984,718
Withdrawal	2,238,744
TOTAL	$ 114,415,014

Demographic Results

Actives	
a. Number	747
b. Annual Compensation	$48,050,890
c. Average Annual Compensation	$64,325
d. Average Attained Age	46.0
e. Average Past Service	9.8
Retired, Disabled and Beneficiaries	
a. Number	466
b. Total Benefits (excluding State COLA)	$14,986,839
c. Average Benefits	$32,161
d. Average Age	73.8
Inactives	
a. Number	411

- Total compensation changed by 5.0% over the prior valuation
  - Average annual compensation changed by 6.4%

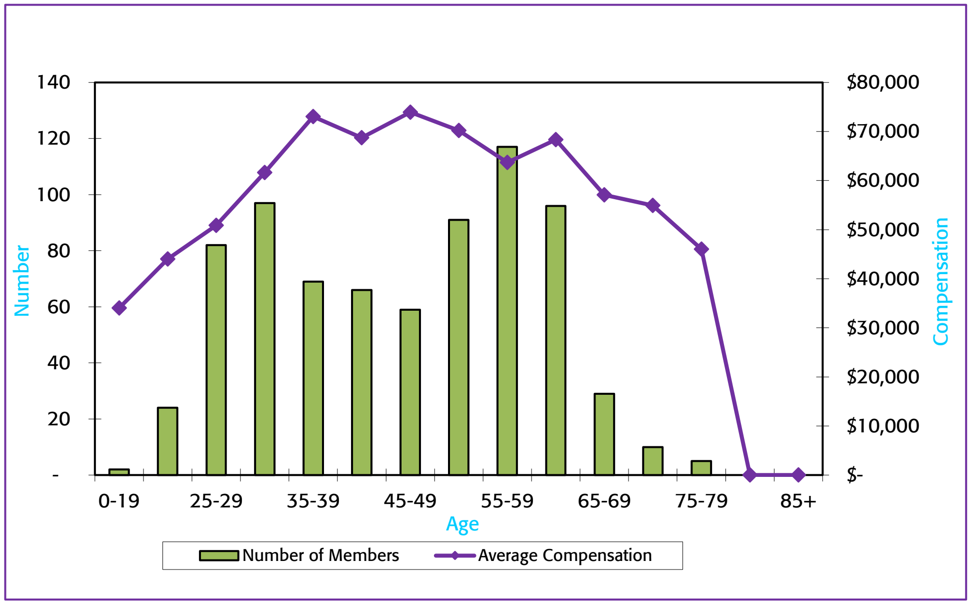
History of Demographic Statistics

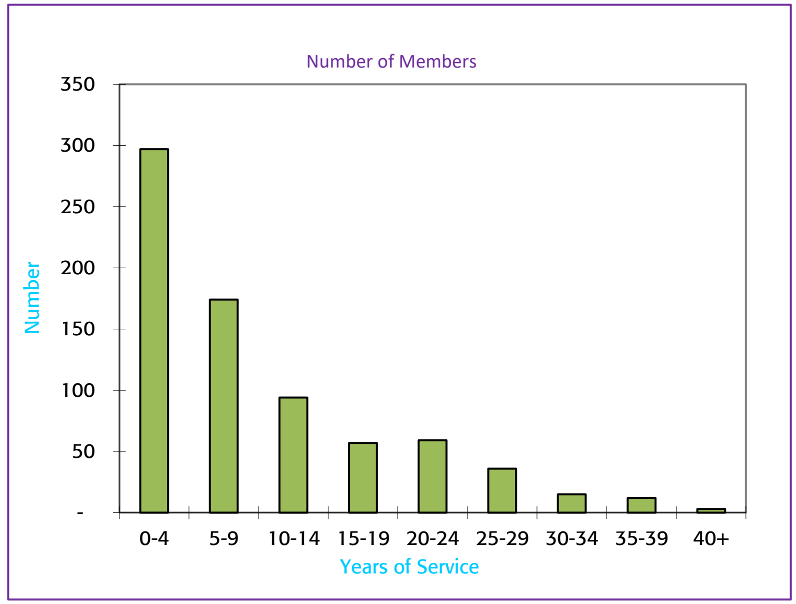
Valuation Year	Actives	Average Age	Average Past Service	Average Ann’l Pay
2023	747	46.0	9.8	$64,325
2021	757	45.9	9.9	$60,429
2020	756	N/A	N/A	$58,019
2018	706	N/A	N/A	$54,685
2016	678	N/A	N/A	$53,290
2014	646	N/A	N/A	$50,852

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	2	-	-	-	-	-	-	-	-	2	$ 68,060	$ 34,030
20-24	24	-	-	-	-	-	-	-	-	24	$ 1,056,436	$ 44,018
25-29	74	8	-	-	-	-	-	-	-	82	$ 4,170,912	$ 50,865
30-34	58	34	4	1	-	-	-	-	-	97	$ 5,977,034	$ 61,619
35-39	27	27	14	1	-	-	-	-	-	69	$ 5,038,687	$ 73,024
40-44	29	15	10	8	4	-	-	-	-	66	$ 4,537,864	$ 68,756
45-49	25	11	6	7	7	3	-	-	-	59	$ 4,362,526	$ 73,941
50-54	18	25	15	8	15	10	-	-	-	91	$ 6,389,333	$ 70,212
55-59	25	33	20	9	13	7	5	5	-	117	$ 7,451,694	$ 63,690
60-64	10	18	18	15	8	11	8	6	2	96	$ 6,562,877	$ 68,363
65-69	4	2	5	6	7	4	-	-	1	29	$ 1,656,075	$ 57,106
70-74	-	1	1	1	5	1	1	-	-	10	$ 549,265	$ 54,927
75-79	1	-	1	1	-	-	1	1	-	5	$ 230,126	$ 46,025
80-84	-	-	-	-	-	-	-	-	-	-	$ -	$ -
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	**297**	**174**	**94**	**57**	**59**	**36**	**15**	**12**	**3**	**747**	**$ 48,050,890**	**$ 64,325**





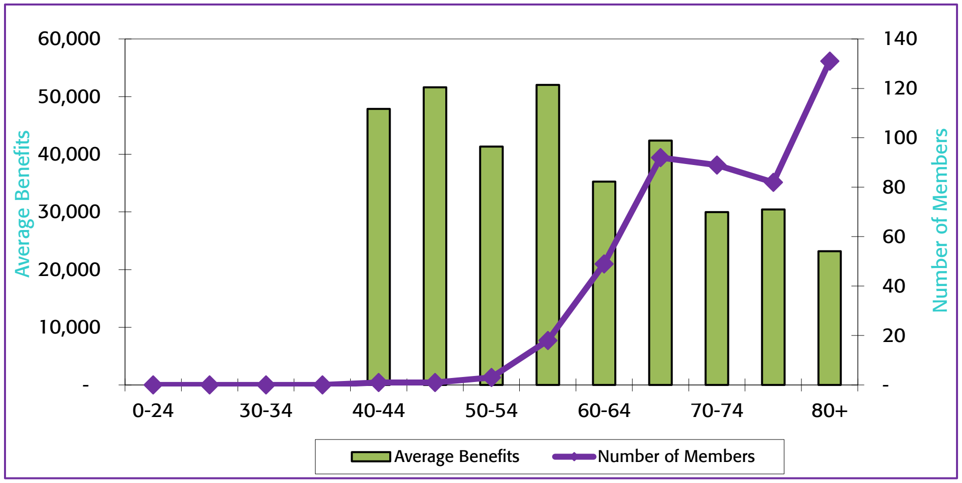
Distribution of Plan Members as of January 1, 2023

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	28,574	28,574
55-59	16	57,999	927,991
60-64	46	35,421	1,629,371
65-69	84	42,368	3,558,896
70-74	88	29,868	2,628,367
75-79	80	29,923	2,393,846
80+	126	23,023	2,900,943
TOTAL	**441**	**$ 31,900**	**$ 14,067,988**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	47,871	47,871
45-49	1	51,624	51,624
50-54	2	47,713	95,426
55-59	2	4,297	8,593
60-64	3	32,462	97,387
65-69	8	42,452	339,615
70-74	1	38,233	38,233
75-79	2	50,664	101,328
80+	5	27,755	138,775
TOTAL	**25**	**$ 36,754**	**$ 918,851**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	47,871	47,871
45-49	1	51,624	51,624
50-54	3	41,333	124,000
55-59	18	52,032	936,584
60-64	49	35,240	1,726,757
65-69	92	42,375	3,898,511
70-74	89	29,962	2,666,600
75-79	82	30,429	2,495,174
80+	131	23,204	3,039,718
TOTAL	**466**	**$ 32,161**	**$ 14,986,839**



Benefits shown are net of State reimbursed COLA.

Assets

	Cash	$	12,295,510.40
	Pooled Domestic Equity Funds		92,478,586.02
	Pooled International Equity Funds		11,073,977.48
	Pooled Domestic Fixed Income Funds		3,864,551.00
	Pooled Alternative Investments		45,238,829.94
	Pooled Real Estate Funds		8,024,886.39
	Hedge Funds		18,002,442.29
A	Sub-Total:	$	190,978,783.52
	Interest Due and Accrued	$	48,171.84
	Accounts Receivable*		5,449,157.78
	Accounts Payable		(181,168.60)
B	Sub-Total:	$	5,316,161.02
	Market Value of Assets [(A) + (B)]	$	196,294,944.54

* This includes $1,060,000 in contributions paid subsequent to the valuation date, which were omitted from the asset data.

- 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 2021-2022: -1.8% vs. a 7.25% assumption.
  - $38,326,609 net actuarial asset loss in Calendar Years 2021 through 2022

Actuarial Value of Assets

For its Actuarial Value of Assets (AVA), Lexington uses a five-year asset smoothing method which recognizes gains and losses over a five-year period. For example, for a gain in 2018, 20% would be recognized in 2019, another 20% in 2020, 2021, and 2022, and the final 20% in 2023.

The AVA is $221.4 million, $25.1 million higher than the MVA. The calculation of the smoothed asset value is shown on the following page. The benefit of using an asset smoothing method is that it results in a more stable measure of the financial condition of the Plan.

Five-Year Asset Smoothing

1.	Market value of assets including receivable/payable as of 01/01/2023	$ 196,294,945

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2022	($50,298,046)	80%	($40,238,437)
b.	2021	$11,971,437	60%	$7,182,862
c.	2020	$10,588,284	40%	$4,235,314
d.	2019	$18,431,717	20%	$3,686,343
e.	2018	($19,663,312)	0%	$0
f.	2017	$16,733,629	0%	$0
g.	Total	($28,969,920)		($25,133,918)

3.	Valuation assets without corridor as of 01/01/2023 (1. - 2.g.)	$ 221,428,862
4.	Corridor Check	
	a. 80% of Market Value	$ 157,035,956
	b. 120% of Market Value	$ 235,553,933
5.	Valuation assets with corridor as of 01/01/2023 (3. within Corridor)	$ 221,428,862
6.	Calculation of return on valuation assets	
	a. Valuation assets as of 01/01/2021	$ 194,047,051
	b. ER contribs + EE contribs - Ben Pymts - Expenses	$ (5,843,334)
	c. Actual return on valuation assets 5. - (6.a. + 6.b.)	$ 33,225,145
	d. Weighted value of valuation assets	$ 185,673,509
	e. Return on valuation assets (6.c. / 6.d.)	17.89%
	f. Annualized return on assets	8.58%

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 Lexington 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.

Between actives and retirees, retirees account for 38% of the population, and 57% of the liability.

Comparative Results

	January 1, 2023	January 1, 2021	Percentage Change
Funding			
Contribution for Fiscal 2025	$10,863,663	$10,863,663	0.0%
Members			
▪ Actives			
a. Number	747	757	-1.3%
b. Annual Compensation	$48,050,890	$45,744,746	5.0%
c. Average Annual Compensation	$64,325	$60,429	6.4%
d. Average Attained Age	46.0	45.9	0.2%
e. Average Past Service	9.8	9.9	-0.9%
▪ Retired, Disabled and Beneficiaries			
a. Number	466	457	2.0%
b. Total Benefits*	$14,986,839	$13,796,059	8.6%
c. Average Benefits*	$32,161	$30,188	6.5%
d. Average Age	73.8	73.4	0.5%
▪ Inactives			
a. Number	411	340	20.9%
Normal Cost			
a. Total Normal Cost as of January 1, 2023	$ 6,180,388	$ 5,949,879	3.9%
b. Less Expected Members' Contributions	4,523,908	4,295,137	5.3%
c. Normal Cost to be funded by the Municipality	$ 1,656,480	$ 1,654,742	0.1%
d. Adjustment to July 1, 2024	113,061	112,942	0.1%
e. Administrative Expense Assumption	291,283	278,739	4.5%
f. Normal Cost Adjusted to July 1, 2024	$ 2,060,824	$ 2,046,424	0.7%
Actuarial Accrued Liability			
a. Active Members	$ 114,415,014	$ 111,042,436	3.0%
b. Inactive Members	4,815,909	3,463,407	39.1%
c. Retired Members and Beneficiaries	149,923,583	138,794,296	8.0%
d. Total	$ 269,154,506	$ 253,300,139	6.3%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability	$ 269,154,506	$ 253,300,139	6.3%
b. Less Actuarial Value of Assets	221,428,862	194,047,051	14.1%
c. Unfunded Actuarial Accrued Liability (UAAL)	$ 47,725,644	$ 59,253,088	-19.5%
d. Adjustment to FY2025	(2,216,018)	1,543,542	
e. UAAL as of FY2025	$ 45,509,626	$ 60,796,630	

* Excluding State reimbursed COLA

APPENDICES

Appendix A – Actuarial Methods and Assumptions

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

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

ASSUMPTION AND METHODOLOGY CHANGES SINCE PRIOR VALUATION

This valuation included two changes:

- Mortality assumption
  - The mortality projection scale was updated from MP-2020 to MP-2021, increasing the liability by $471 thousand
- COLA increase
  - A one-time COLA of 5% was granted for FY23, increasing the liability by $1.0 million.

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 five years (shown on page 13). The asset valuation method adjusts the results to no less than 80% and no more than 120% 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

7.25% 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 $15,000 of a member's retirement allowance is assumed to be granted for FY23, with 3% increases every year thereafter.

Salary Increases

Increases based on employment group, and years of service:

- Group 1 and 2: 5.75% for year 1, 5.25% for years 2 and 3, 4.75% for years 4 and 5, 4.25% for years 6 and 7, 3.75% for years 8 and 9, 3.50% thereafter

- Group 4: 6.25% for year 1, 5.75% for year 2, 5.25% for year 3, 4.75% for year 4, 4.25% for years 5 and 6, 3.75% for years 7 and 8, 3.50% thereafter

Total payroll is assumed to increase at 4.50% per year. The salary increase assumption reflects prior experience, current expectations, and professional judgement.

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).

Actuarial Methods and Assumptions (Continued)

Credited Service

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

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 quarterly.

In-Service Disability and Death

Both Disability and In-Service Death are assumed to be 20% ordinary and 80% accidental for Group 1 and 2, and 10% ordinary and 90% accidental for Group 4.

Mortality

RP-2014 adjusted to 2006, Projected using 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.

Retirement, Disability, and Withdrawal

The next three sets of rates shown are based on a study by PERAC; these represent a change from the 2018 valuation, which used rates based on an experience study by Sherman Actuarial Services. The net effect of the change reduced the liability by $1.6 million.

Administrative Expenses

Estimated budgeted amount of $291,283 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.

Actuarial Methods and Assumptions (Continued)

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

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 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 $15,000 of annual benefit for FY23, with 3% increases in subsequent 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:	$4,523,908	9.4%	of payroll
The normal cost for the employer was:	$1,656,480	3.4%	of payroll

The actuarial liability for active members was:	$114,415,014
The actuarial liability for retired members was (includes inactives):	$154,739,492
Total actuarial accrued liability:	$269,154,506
System assets as of that date ($196,294,944.54 Market Value):	$221,428,862
Unfunded actuarial accrued liability:	$47,725,644

The ratio of system's assets to total actuarial liability was:	82%

As of that date the total covered employee payroll was:	$48,050,890

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

Investment Return:	7.25% per annum
Rate of Salary Increase:	Select and ultimate (3.50% 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	$221,429	$269,155	$47,726	82%	$48,051	99%
1/1/2021	$194,047	$253,300	$59,253	77%	$45,745	130%
1/1/2020	$178,655	$222,082	$43,427	80%	$43,862	99%
1/1/2018	$164,000	$188,181	$24,162	87%	$38,608	63%
1/1/2016	$144,700	$169,564	$24,865	85%	$36,131	69%

			Total		School Administration		General		Fire and Police		Housing Authority		Sewer and Water		Recreation
(1)	Payroll of Active Participants	$	48,050,890	$	21,896,002	$	12,946,510	$	11,163,180	$	519,974	$	922,046	$	603,178
	Percentage of total		100.00%		45.57%		26.94%		23.23%		1.08%		1.92%		1.26%
(2)	Actuarial Accrued Liability	$	269,154,506	$	82,720,437	$	72,491,291	$	100,603,745	$	2,727,170	$	6,553,216	$	4,058,647
(3)	Assets	$	221,428,862	$	68,052,705	$	59,637,360	$	82,765,000	$	2,243,597	$	5,391,220	$	3,338,980
(4)	Unfunded Actuarial Accrued Liability	$	47,725,644	$	14,667,732	$	12,853,931	$	17,838,745	$	483,573	$	1,161,996	$	719,667
(5)	Nonactive benefits	$	14,986,840	$	3,960,549	$	4,224,617	$	6,060,951	$	97,398	$	427,455	$	215,869
(6)	Total Employer Contributions														
	(a) Amortization	$	8,254,130	$	2,536,778	$	2,223,082	$	3,085,203	$	83,634	$	200,967	$	124,466
	(b) Employer Normal Cost	$	1,769,541	$	699,802	$	228,478	$	830,237	$	13,715	$	13,671	$	(16,362)
	(c) Administrative Expense	$	291,283	$	132,733	$	78,481	$	67,671	$	3,152	$	5,589	$	3,656
	(d) Net 3(8)(c) Payments	$	269,304	$	71,168	$	75,914	$	108,911	$	1,750	$	7,681	$	3,879
	(e) Timing Adjustment	$	279,405	$	90,823	$	68,793	$	108,022	$	2,699	$	6,016	$	3,053
	(f) Total Appropriation	$	10,863,663	$	3,531,304	$	2,674,747	$	4,200,045	$	104,950	$	233,925	$	118,692
	Percentage of total		100.00%		32.51%		24.62%		38.66%		0.97%		2.15%		1.09%
(7)	Fiscal Year 2025 Appropriation	$	10,863,663	$	4,950,393	$	2,927,033	$	2,523,846	$	117,559	$	208,462	$	136,371
	Percentage of total		100.00%		45.57%		26.94%		23.23%		1.08%		1.92%		1.26%
(8)	Fiscal Year 2026 Appropriation	$	11,613,663	$	5,292,156	$	3,129,108	$	2,698,086	$	125,675	$	222,854	$	145,785
	Percentage of total		100.00%		45.57%		26.94%		23.23%		1.08%		1.92%		1.26%