LAWRENCE CONTRIBUTORY RETIREMENT SYSTEM

FINANCIAL REPORTING AND DISCLOSURES
Governmental Accounting Standards Board
Statements 67 and 68

Disclosures as of
December 31, 2022

KMS Actuaries, LLC
52 Hunt Road
Kingston, NH 03848

April, 2023

KMS
ACTUARIES
LLC

April 20, 2023

Board Members
Lawrence Contributory Retirement System
354 Merrimack Street, Suite 302
Lawrence, MA 01843

Dear Board Members:

We are pleased to present the enclosed report providing financial reporting and disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67, Financial Reporting for Pension Plans (GASB 67), and GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68) for the Lawrence Contributory Retirement System and participating employers as of December 31, 2022. Results are based on liabilities developed in an actuarial valuation as of January 1, 2022 and rolled forward to the plan's measurement date of December 31, 2022.

The Principal Valuation Results are provided in Section 1. The Notes to the Financial Statements and the Required Supplementary Information are provided in Sections 2 and 3, respectively. Employer Reporting Amounts Under GASB 68 are provided in Section 4. Finally, a Glossary of Terms is provided in Section 5.

The financial reporting and disclosures contained in this report are based on the member data provided by the Lawrence Contributory Retirement Board, asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Retirement Board and plan provisions contained in Chapter 32 of the Massachusetts General Laws. Although we did not audit the data used in the valuation and disclosure calculations, we believe that the information is complete and reliable.

Liabilities presented in this report are based on a long-term investment return rate assumption of 7.00%, net of investment expense, compounded annually.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the Plan and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the Plan.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

This report is intended for the sole use of the Lawrence Contributory Retirement System and participating employers and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

KMS Actuaries is completely independent of the Lawrence Contributory Retirement System and any of its officers or key personnel. None of the actuaries signing this report or anyone closely associated with them has a relationship with the Lawrence Contributory Retirement System, other than as consulting actuary for this assignment, that would impair our independence.

Respectfully submitted,

Linda Bournival

Linda L. Bournival, FSA
Member, American Academy of Actuaries
(603) 792-9494

Amanda Makarevich

Amanda J. Makarevich, FSA
Member, American Academy of Actuaries
(603) 792-9494

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GASB 67 and GASB 68

In June 2012, the GASB approved two related Statements that significantly changed the way pension plans and governments account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, **GASB Statement No. 67**, *Financial Reporting for Pension Plans* , replaced the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, **GASB Statement No. 68**, *Accounting and Financial Reporting for Pensions* , replaced the requirements of Statement No. 27.

The pension standards reflect changes from those previously in place regarding how governments calculate total pension liability and pension expense. Further, the standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

GASB 67 requires defined benefit pension plans, such as the Lawrence Contributory Retirement System, to present a statement of fiduciary net position (pension plan assets) and a statement of changes in fiduciary net position. Further, the statement requires that notes to financial statements include descriptive information such as the types of benefits provided, the classes of plan members covered and the composition of the pension plan's retirement board. Finally, GASB 67 requires pension plans to present in required supplementary information the sources of the changes in the net pension liability and information about the actuarially determined contributions compared with the actual contributions made to the plan and related ratios.

GASB 67 and GASB 68 require projected benefit payments be discounted to their actuarial present value using the single rate that reflects a long-term expected rate of return on pension plan investments to the extent that the pension plan's assets are sufficient to pay benefits and pension plan assets are expected to be invested using a strategy to achieve that return and a tax-exempt, high-quality municipal bond rate to the extent that the conditions for use of the long-term expected rate of return are not met.

GASB 68 establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources and pension expense by state and local governments.

The effective date for GASB 67 is for plan years beginning after June 15, 2013, which is the fiscal year ending December 31, 2014 for the Lawrence Contributory Retirement System. The effective date for GASB 68 is for employers' fiscal years beginning after June 15, 2014. The disclosures prepared as of December 31, 2022 (the measurement date) presents information to assist the Lawrence Contributory Retirement Board in providing the required information under GASB 68 to participating employers.

GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* , clarifies the application of certain provisions of Statements 67 and 68 with regard to the following issues:

(1) Information about investment-related factors that significantly affect trends in the amounts reported for GASB 67 and GASB 68 should be limited to those factors over which the pension plan or participating governments have influence (such as an investment policy) and

(2) The contribution-related schedules in the RSI should exclude amounts associated with payables to the pension plan that arose in a prior fiscal year.

GASB Statement No. 82, *Pension Issues - An Amendment of GASB Statements No. 67, No. 68, and No. 73* , clarifies the definition of covered payroll, that a deviation from the Actuarial Standards of Practice with respect to selection of assumptions is not considered to be in conformity with GASB 67, GASB 68 and GASB 73, and that employer-paid member contributions are to be classified as plan member contributions.

EXECUTIVE SUMMARY

A summary of principal results from the current disclosures and prior disclosures follows.

Disclosure Date	December 31, 2022	December 31, 2021	% Change
Valuation Date	January 1, 2022	January 1, 2022	
Membership Data			
Active Plan Members	1,495	1,554	(3.8%)
Inactive Members Currently in Receipt	929	912	1.9%
Inactive Members Deferred	751	795	(5.5%)
Total Plan Members	3,175	3,261	(2.6%)
Covered Payroll	$79,937,853	$79,526,303	0.5%
Net Pension Liability			
Discount Rate	7.00%	7.00%	
Total Pension Liability (TPL)	$514,735,635	$496,396,690	3.7%
Fiduciary Net Position (FNP)	302,914,197	342,659,255	(11.6%)
Net Pension Liability (NPL)	$211,821,438	$153,737,435	37.8%
FNP as % of TPL	58.8%	69.0%	(14.8%)
Pension Expense			
Pension Expense	$22,303,434	$3,500,197	537.2%
Deferred Outflows	$27,886,647	$12,131,156	
Deferred Inflows	$10,104,087	$53,878,773	
Recognition Period	5.38	5.38	

Fiduciary Net Position

Pension plan investments are reported at market value as of the measurement date. The fiduciary net position as of the current and prior measurement dates are shown in Section 1, Fiduciary Net Position.

Total Pension Liability

The Total Pension Liability is based on liabilities developed in an actuarial valuation performed as of January 1, 2022 and rolled forward to the plan's measurement date of December 31, 2022 and is shown in Section 1, Total Pension Liability.

Benefit Changes

The maximum amount of pension benefit subject to a cost-of-living adjustment (COLA) will increase from $12,000 to $14,000 effective July 1, 2023. All other benefit provisions remained the same from the prior measurement date. The Plan provisions used in these disclosures are detailed in Section 5, Summary of Plan Provisions, in the most recent funding actuarial report.

Assumption Changes

All of the Actuarial Assumptions and Methods used in these disclosures are the same as the last measurement date. The Actuarial Assumptions and Methods used in these disclosures are detailed in Section 6, Actuarial Assumptions and Methods, in the most recent funding valuation report.

Pension Expense

The Pension Expense for the fiscal year ending December 31, 2022 is $22,303,434 and is developed in Exhibit 4.2. Pension Expense, as well as the Net Pension Liability and Deferred Outflows of Resources and Deferred Inflows of Resources, are developed for each member unit and are shown in Appendix C. Amounts by employer are developed using a proportionate share, the proportion of each employer's contribution to the aggregate amount of employer contributions, as shown in Exhibit 4.3.

COVID-19 Pandemic

The assumptions in this report do not reflect the potential impacts of the COVID-19 pandemic on the System. Especially in the short range, the pandemic is likely to materially affect the economic and demographic experience, in a way not anticipated by the assumptions on which the projections are based.

SECTION 1 - PRINCIPAL VALUATION RESULTS

Fiduciary Net Position

Asset information was provided by the Lawrence Contributory Retirement Board. The Trust Fund Composition, Asset Activity and the Gain or Loss on Pension Plan Investments for the current and prior fiscal years are as follows:

Fiscal Year Ended December 31	2022	2021
Trust Fund Composition at Fiscal Year-End		
Cash	$ 951,906	$ 956,461
Individually Owned Short Term Investments	0	0
Fixed Income Securities	0	0
Equities (at market value)	0	0
Pooled Short Term Funds	0	0
Pooled Domestic Equity Funds	0	0
Pooled International Equity Funds	0	0
Pooled Global Equity Funds	0	0
Pooled Domestic Fixed Income Funds	0	0
Pooled International Fixed Income Funds	0	0
Pooled Global Fixed Income Funds	0	0
Pooled Alternative/Private Equity	0	0
Pooled Real Estate Funds	0	0
Pooled Domestic Balanced Funds	0	0
Pooled International Balanced Funds	0	0
Hedge Funds	0	0
PRIT Cash	1,410,504	1,400,163
PRIT Fund	301,160,988	341,383,859
Interest Due and Accrued	0	0
Prepaid Expenses	13,162	12,663
Accounts Receivable (A)	720,627	555,902
Land	0	0
Buildings	0	0
Accumulated Depreciation - Buildings	0	0
Accounts Payable (A)	(1,342,990)	(1,649,793)
Auditor or Other Adjustments	0	0
Total Market Value of Assets	$ 302,914,197	$ 342,659,255

Fiduciary Net Position

Fiscal Year Ended December 31	2022	2021
Asset Activity		
Market value as of beginning of year	$ 342,659,255	$ 286,851,650
Contributions - employer	23,749,608	22,825,031
Contributions - member	8,589,628	7,739,593
Net investment income	(38,884,834)	56,218,681
Benefit payments, including refunds of member contributions	(32,575,251)	(30,468,946)
Administrative expenses	(624,209)	(506,754)
Other	0	0
Market Value as of end of year	$ 302,914,197	$ 342,659,255
Money-Weighted Rate of Return	-11.27%	19.69%

(Gain) / Loss on Pension Plan Investments		
Projected earnings	$ 23,856,273	$ 20,685,479
Actual earnings	(38,884,834)	56,218,681
(Gain) / Loss on pension plan investments	$ 62,741,107	$ (35,533,202)

Total Pension Liability

The Total Pension Liability, developed using the Entry Age Normal funding method, is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service. The total pension liability as of the December 31, 2022 measurement date was developed from an actuarial valuation as of January 1, 2022 and rolled forward to the pension plan's fiscal year-end.

The Service Cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year. Only active employees who have not reached the age at which the probability of retirement is 100% incur a service cost.

Actuarial gains and losses arise from the difference between estimates and actual experience, excluding amounts related to benefit changes and changes in assumptions or other inputs.

The development of the Total Pension Liability from the beginning of the measurement period, December 31, 2021 to the end of the measurement period, December 31, 2022 is shown below:

Measurement Date			December 31, 2022
1. Total Pension Liability, beginning of year:			
a. Actives	$ 207,603,951		
b. Retired and Disabled Members and Beneficiaries	280,638,336		
c. Inactive Members	8,154,403		
d. Total Pension Liability at 7% (a. + b. + c.)		$	496,396,690
2. Service Cost		$	12,370,415
3. Benefit Payments			(32,575,251)
4. Interest [7% x (1.d. + 2. + .5 x 3)]		$	33,333,430
5. Changes of benefit terms			5,210,351
6. Differences between expected and actual experience			-
7. Changes of assumptions or other inputs			-
8. Total Pension Liability, end of year (1.d. + 2. + 3. + 4. + 5. + 6. + 7.)			
a. Actives	$ 237,619,496		
b. Retired and Disabled Members and Beneficiaries	268,390,928		
c. Inactive Members	8,725,211		
d. Total Pension Liability at 7% (a. + b. + c.)		$	514,735,635

Plan Description

Plan administration

The Lawrence Contributory Retirement System (the "System") is a cost-sharing, multiple-employer defined benefit pension plan that provides pensions for eligible employees of the City of Lawrence. The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of the Massachusetts General Laws. The System does not have the authority to amend benefit provisions.

The System is governed by a Retirement Board made up of five elected and appointed members.

Plan membership

At December 31, 2022, pension plan membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefits	929
Inactive plan members entitled to but not yet receiving benefits	751
Active plan members	1,495
	3,175

Benefits provided

The System provides retirement, disability and death benefits. Retirement benefits are determined as a percentage of the member's 3-year (5-year for members hired after April 1, 2012) final average compensation times the member's years of service. The percentage is based on the age of the member at retirement and his or her Group classification. Cost-of-living adjustments of 3% of the first $12,000 of the annual retirement allowance are provided at the discretion of the System's Retirement Board. Effective July 1, 2023, cost-of-living adjustments of 3% of the first $14,000 of the annual retirement allowance will be provided at the discretion of the System's Retirement Board. A summary of the benefits is outlined in the January 1, 2022 actuarial valuation report.

Contributions

Plan members are required to contribute a percentage of their annual compensation that varies according to their membership date, as follows:

Prior to 1975	5% of Salary
1975 – 1983	7% of Salary
1984 – June 30, 1996	8% of Salary
July 1, 1996 – present	9% of Salary
1979 – present	An additional 2% of Salary in excess of $30,000.
Group 1 members hired on or after April 2, 2012	6% of Salary with 30 or more years of creditable service.

Employer contributions are determined in accordance with the requirements set forth in Section 22D and Section 22F of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability.

Net Pension Liability

The components of the Net Pension Liability at December 31, 2022, were as follows:

Total Pension Liability	$ 514,735,635
Fiduciary Net Position	(302,914,197)
Net Pension Liability	$ 211,821,438

Fiduciary Net Position as a percentage of the Total Pension Liability 58.8%

Actuarial assumptions

The Total Pension Liability was determined by an actuarial valuation as of January 1, 2022, rolled forward to the measurement date of December 31, 2022 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.4% per year
Salary increases	7.75% - 3.75%, based on service
Investment rate of return	7%, net of pension plan investment expense, including inflation

Mortality rates were based on the RP-2014 Blue Collar Mortality Table with full generational mortality improvement using Scale MP-2020 For disabled lives, the mortality rates were based on the RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2020.

Long-Term Real Rates of Return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of geometic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2022 (see the discussion of the pension plan's investment policy) are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rates of Return[1]
Global Equity	38.0%	4.74%
Core Fixed Income	15.0%	2.10%
Value Added Fixed Income	8.0%	5.20%
Private Equity	15.0%	7.60%
Real Estate	10.0%	3.10%
Timberland	4.0%	4.40%
Portfolio Completion Strategies	10.0%	3.90%
Total	100%	

[1] Provided by Pension Reserves Investment Management Board. Inflation of 2.4% is added to the long-term expected real rates of return to approximate the long-term expected rate of return.

Discount Rate

The discount rate used to measure the Total Pension Liability is 7%. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rates and that contributions from participating employers will be made in accordance with Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. Based on those assumptions, the pension plan's Fiduciary Net Position was projected to be available to make all projected benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate:

The following presents the Net Pension Liability calculated using the discount rate of 7%, as well as what the Net Pension Liability would be if it were calculated using a discount rate 1-percentage point lower (6%) or 1-percentage point higher (8%) than the current rate:

	1% Decrease (6%)	Current Discount Rate (7%)	1% Increase (8%)
Total Pension Liability	$ 571,343,616	$ 514,735,635	$ 463,587,653
Fiduciary Net Position	302,914,197	302,914,197	302,914,197
Net Pension Liability	$ 268,429,419	$ 211,821,438	$ 160,673,456

Exhibit 3.1 - Changes in Net Pension Liability and Related Ratios

Fiscal Year Ended December 31	2022	2021	2020	2019	2018
Total Pension Liability					
Service cost	$ 12,370,415	$ 10,666,983	$ 10,232,118	$ 9,899,393	$ 9,495,821
Interest	33,333,430	33,879,521	33,897,815	33,814,517	32,766,857
Changes of benefit terms	5,210,351	-	-	-	-
Differences between expected and actual experience	-	(13,283,146)	-	(5,276,741)	-
Changes of assumptions	-	8,496,574	-	6,640,447	-
Benefit payments, including refunds of member contributions	(32,575,251)	(30,468,946)	(28,696,348)	(28,732,649)	(28,662,273)
Net change in Total Pension Liability	$ 18,338,945	$ 9,290,986	$ 15,433,585	$ 16,344,967	$ 13,600,405
Total Pension Liability--beginning	$ 496,396,690	$ 487,105,704	$ 471,672,119	$ 455,327,152	$ 441,726,747
Total Pension Liability--ending (a)	$ 514,735,635	$ 496,396,690	$ 487,105,704	$ 471,672,119	$ 455,327,152
Fiduciary Net Position					
Contributions--employer	$ 23,749,608	$ 22,825,031	$ 22,075,444	$ 21,372,968	$ 20,798,277
Contributions--member	8,589,628	7,739,593	7,790,258	7,245,783	6,843,882
Net investment income	(38,884,834)	56,218,681	30,834,840	35,297,870	(5,258,480)
Benefit payments, including refunds of member contributions	(32,575,251)	(30,468,946)	(28,696,348)	(28,732,649)	(28,662,273)
Administrative expenses	(624,209)	(506,754)	(511,249)	(486,756)	(502,445)
Other	-	-	-	-	-
Net change in Fiduciary Net Position	$ (39,745,058)	$ 55,807,605	$ 31,492,945	$ 34,697,216	$ (6,781,039)
Fiduciary Net Position--beginning	$ 342,659,255	$ 286,851,650	$ 255,358,705	$ 220,661,489	$ 227,442,528
Fiduciary Net Position--ending (b)	$ 302,914,197	$ 342,659,255	$ 286,851,650	$ 255,358,705	$ 220,661,489
Net Pension Liability and Related Ratios					
Net Pension Liability--ending (a) -- (b)	$ 211,821,438	$ 153,737,435	$ 200,254,054	$ 216,313,414	$ 234,665,663
Fiduciary Net Position as a percentage of the Total Pension Liability	58.85%	69.03%	58.89%	54.14%	48.46%
Covered Payroll	$ 79,937,853	$ 79,526,303	$ 76,525,906	$ 75,849,815	$ 75,251,536
Net Pension Liability as a percentage of Covered Payroll	264.98%	193.32%	261.68%	285.19%	311.84%

Exhibit 3.1 - Changes in Net Pension Liability and Related Ratios (continued)

Fiscal Year Ended December 31	2017	2016	2015	2014	2013
Total Pension Liability					
Service cost	$ 9,108,701	$ 8,737,363	$ 8,829,413	$ 8,469,461	
Interest	32,023,014	31,842,170	30,713,326	29,607,284	
Changes of benefit terms	-	-	-	-	
Differences between expected and actual experience	1,144,843	(11,573,571)	-	-	
Changes of assumptions	9,356,284	-	-	-	
Benefit payments, including refunds of member contributions	(27,995,140)	(26,092,541)	(23,677,370)	(24,653,000)	
Net change in Total Pension Liability	$ 23,637,702	$ 2,913,421	$ 15,865,369	$ 13,423,745	
Total Pension Liability--beginning	$ 418,089,045	$ 415,175,624	$ 399,310,255	$ 385,886,510	
Total Pension Liability--ending (a)	$ 441,726,747	$ 418,089,045	$ 415,175,624	$ 399,310,255	
Fiduciary Net Position					
Contributions--employer	$ 20,605,965	$ 19,329,195	$ 18,508,911	$ 17,323,139	
Contributions--member	6,781,214	6,851,473	6,706,412	6,950,852	
Net investment income	33,087,834	13,190,264	1,013,895	12,432,925	
Benefit payments, including refunds of member contributions	(27,995,140)	(26,092,541)	(23,677,370)	(24,653,000)	
Administrative expenses	(503,255)	(472,754)	(470,318)	(454,640)	
Other	-	-	-	-	
Net change in Fiduciary Net Position	$ 31,976,618	$ 12,805,637	$ 2,081,530	$ 11,599,276	
Fiduciary Net Position--beginning	$ 195,465,910	$ 182,660,273	$ 180,578,743	$ 168,979,467	
Fiduciary Net Position--ending (b)	$ 227,442,528	$ 195,465,910	$ 182,660,273	$ 180,578,743	
Net Pension Liability and Related Ratios					
Net Pension Liability--ending (a) -- (b)	$ 214,284,219	$ 222,623,135	$ 232,515,351	$ 218,731,512	
Fiduciary Net Position as a percentage of the Total Pension Liability	51.49%	46.75%	44.00%	45.22%	
Covered Payroll	$ 77,421,566	$ 73,741,641	$ 74,624,910	$ 71,253,430	
Net Pension Liability as a percentage of Covered Payroll	276.78%	301.90%	311.58%	306.98%	

Note: Only 9 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

Exhibit 3.2 - Schedule of Employer Contributions

Fiscal Year Ended December 31	2022	2021	2020	2019	2018
Actuarially Determined Contribution	$ 23,639,335	$ 22,801,808	$ 21,607,083	$ 21,375,578	$ 20,756,572
Contributions in relation to the Actuarially Determined Contribution	23,749,608	22,825,031	22,075,444	21,372,968	20,798,277
Contribution deficiency (excess)	$ (110,273)	$ (23,223)	$ (468,361)	$ 2,610	$ (41,705)
Covered Payroll	$ 79,937,853	$ 79,526,303	$ 76,525,906	$ 75,849,815	$ 75,251,536
Contributions as a percentage of Covered Payroll	29.71%	28.70%	28.85%	28.18%	27.64%

The contribution shown above, $23,749,608, was made by member units of the Lawrence Contributory Retirement System for the 2023 fiscal year, and is comprised of the appropriation due of $23,639,335 less estimated federal grants of $580,112 plus actual federal grants reported on the Annual Statement of $690,385.

Exhibit 3.2 - Schedule of Employer Contributions (continued)

Fiscal Year Ended December 31	2017	2016	2015	2014	2013
Actuarially Determined Contribution	$ 20,684,393	$ 19,320,161	$ 18,515,120	$ 17,121,294	
Contributions in relation to the Actuarially Determined Contribution	20,605,965	$ 19,329,195	$ 18,508,911	$ 17,323,139	
Contribution deficiency (excess)	$ 78,428	$ (9,034)	$ 6,209	$ (201,845)	
Covered Payroll	$ 77,421,566	$ 73,741,641	$ 74,624,910	$ 71,253,430	
Contributions as a percentage of Covered Payroll	26.62%	26.21%	24.80%	24.31%	

Note: Only 9 years are presented here and on the previous page, beginning with the year of implementation; 10 years of information will be required.

Exhibit 3.3 - Investment Returns

Fiscal Year Ended December 31	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Annual money-weighted rate of return, net of investment expense	-11.27%	19.69%	12.01%	16.08%	-2.29%	17.06%	7.53%	0.59%	7.39%	

The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of pension plan investments by the proportion of time they are available to earn a return during that period. The rate of return is then calculated by solving, through an iterative process, for the rate that equates the sum of the weighted external cash flows into and out of the pension plan investments to the ending fair value of pension plan investments.

Appendix A shows the details of the calculation of the money-weighted rate of return for the current fiscal year.

Note: Only 9 years are presented here, beginning with the year of implementation; 10 years of information will be required.

Notes to the Required Supplementary Information

Changes of benefit terms

The maximum amount of pension benefit subject to a cost-of-living adjustment (COLA) will increase from $12,000 to $14,000 effective July 1, 2023. All other benefit provisions remained the same from the prior measurement date. The Plan provisions used in these disclosures are detailed in Section 5, Summary of Plan Provisions, in the most recent funding actuarial report.

Changes of assumptions

All of the Actuarial Assumptions and Methods used in these disclosures are the same as the last measurement date. The Actuarial Assumptions and Methods used in these disclosures are detailed in Section 6, Actuarial Assumptions and Methods, in the most recent funding valuation report.

Methods and assumptions used in calculations of Actuarially Determined Contributions

The Actuarially Determined Contributions in the schedule of employers' contributions are calculated as of July 1 of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine contributions reported in that schedule:

Actuarial cost method	Entry Age Normal	
Amortization method	UAAL	The Unfunded Actuarial Accrued Liability is expected to be fully funded on June 30, 2036.
	2002 & 2003 ERI	Increasing dollar amount at 4% to reduce the 2002 and 2003 ERI Actuarial Accrued Liability to zero by June 30, 2028 except for the Lawrence Housing Authority, where an increasing dollar amount at 4.5% to reduce the 2002 ERI Actuarial Accrued Liability to zero by June 30, 2028 applies.
Asset valuation method	The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of: a) 80% of gains and losses of the prior year, b) 60% of gains and losses of the second prior year, c) 40% of gains and losses of the third prior year, and d) 20% of gains and losses of the fourth prior year. Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 80% or more than 120% of market value. The actuarial value of assets smoothing method described here was implemented beginning with the January 1, 2022 valuation, and only 2020 and 2021 gains and losses were considered in determining the actuarial value of assets for this valuation.	

Notes to the Required Supplementary Information

Inflation	2.4% per year
Salary increases	7.75% - 3.75%, based on service
Payroll growth	3.75% per year
Investment rate of return	7%, net of pension plan investment expense, including inflation.

Exhibit 4.1 - Deferred Outflows of Resources and Deferred Inflows of Resources

Deferred Outflows of Resources and Deferred Inflows of Resources arising from differences between expected and actual experience are recognized in Pension Expense over the average expected remaining service life of all active and inactive members.

				Balances at December 31, 2022	
	Experience Losses	Experience Gains	Amounts Recognized in Pension Expense through December 31, 2022	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2016	$ -	$ 11,573,571	$ (11,573,571)	$ -	$ -
2017	1,144,843	-	1,126,074	18,769	-
2018	-	-	-	-	-
2019	-	5,276,741	(3,517,828)	-	1,758,913
2020	-	-	-	-	-
2021	-	13,283,146	(4,937,972)	-	8,345,174
2022	-	-	-	-	-
Total				$ 18,769	$ 10,104,087

Deferred Outflows of Resources and Deferred Inflows of Resources arising from changes of assumptions are recognized in Pension Expense over the average expected remaining service life of all active and inactive members.

				Balances at December 31, 2022	
	Increases in the Total Pension Liability	Decreases in the Total Pension Liability	Amounts Recognized in Pension Expense through December 31, 2022	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2016	$ -	$ -	$ -	$ -	$ -
2017	9,356,284	-	9,202,902	153,382	-
2018	-	-	-	-	-
2019	6,640,447	-	4,426,964	2,213,483	-
2020	-	-	-	-	-
2021	8,496,574	-	3,158,578	5,337,996	-
2022	-	-	-	-	-
Total				$ 7,704,861	$ -

Exhibit 4.1 - Deferred Outflows of Resources and Deferred Inflows of Resources

Deferred Outflows of Resources and Deferred Inflows of Resources arising from differences between projected and actual earnings on Pension Plan investments are recognized in Pension Expense over five years.

				Balances at December 31, 2022	
	Investment Earnings Less Than Projected	Investment Earnings Greater Than Projected	Amounts Recognized in Pension Expense through December 31, 2022	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2016	$ 826,668	$ -	$ 826,668	$ -	$ -
2017	-	18,114,834	(18,114,834)	-	-
2018	22,259,572	-	22,259,572	-	-
2019	-	18,770,783	(15,016,628)	-	3,754,155
2020	-	12,389,477	(7,433,685)	-	4,955,792
2021	-	35,533,202	(14,213,280)	-	21,319,922
2022	62,741,107	-	12,548,221	50,192,886	-
Subtotal				$ 50,192,886	$ 30,029,869
Net				$ 20,163,017	$ -

Exhibit 4.1 - Deferred Outflows of Resources and Deferred Inflows of Resources

Deferred Outflows of Resources and Deferred Inflows of Resources arising from changes in proportion and differences between employer contributions and proportionate share of contributions are recognized in Pension Expense over the average expected remaining service life of all active and inactive members.

				Balances at December 31, 2022	
	Proportionate Share* Outflows	Proportionate Share* Inflows	Amounts Recognized in Pension Expense through December 31, 2022	Deferred Outflows of Resources	Deferred Inflows of Resources
Year	(a)	(b)	(c)	(a) - (c)	(b) + (c)
2016	$ 1,546,956	$ 1,546,956	$ 1,546,956	$ -	$ -
2017	837,620	837,621	823,889	13,731	13,731
2018	290,555	290,555	238,160	52,395	52,395
2019	2,133,523	2,133,523	1,422,349	711,174	711,174
2020	1,486,262	1,486,262	743,131	743,131	743,131
2021	274,757	274,757	102,140	172,617	172,617
2022	1,323,661	1,323,661	246,033	1,077,628	1,077,628
Total				$ 2,770,676	$ 2,770,676

* Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions

Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources will be recognized in Pension Expense as follows:

Year ended December 31		
2023	$	(1,280,732)
2024	$	2,301,273
2025	$	4,551,884
2026	$	12,210,135
2027	$	-
Thereafter	$	-
Total Deferred Outflows	$	30,657,323
Total Deferred Inflows	$	12,874,763

Exhibit 4.2 - Pension Expense

The Pension Expense and deferred outflows and inflows of resources primarily result from changes in the components of the net pension liability (NPL). Most changes in the NPL are included in the Pension Expense in the period of the change, including service cost, interest on total pension liability, changes in benefit terms and projected earnings on the pension plan's investments. Other changes in the net pension liability are included in Pension Expense over the current and future periods. These include the effects on the total pension liability of changes of economic and demographic assumptions and differences between expected and actual experience. In addition, the effect on the net pension liability of differences between the projected earnings on pension plan investments and actual experience with regard to those earnings are included in Pension Expense over the current and future periods. The Pension Expense for the reporting period ending December 31, 2022 is presented below:

1.	Service cost		$ 12,370,415
2.	Interest on the total pension liability		
	a. Total Pension Liability, beginning of year	496,396,690	
	b. Service cost, beginning of year	12,370,415	
	c. Benefit payments, including refunds of employee contributions	(32,575,251)	
	d. Interest on Total Pension Liability		33,333,430
3.	Differences between expected and actual experience		(4,670,361)
4.	Changes of benefit terms		5,210,351
5.	Changes of assumptions		4,219,847
6.	Employee contributions		(8,589,628)
7.	Projected earnings on pension plan investments		
	a. Fiduciary Net Position, beginning of year	342,659,255	
	b. Employer contributions	23,749,608	
	c. Employee contributions	8,589,628	
	d. Benefit payments, including refunds of employee contributions	(32,575,251)	
	e. Administrative expenses and other	(624,209)	
	f. Total projected earnings		(23,856,273)
8.	Differences between projected and actual earnings on plan investments		3,661,444
9.	Pension plan administrative expenses		624,209
10.	Other changes in Fiduciary Net Position		-
11.	**Total Pension Expense**		$ 22,303,434

Exhibit 4.3 - Proportionate Share of Contributions

The basis of an employer's allocation of the collective pension amount is consistent with the manner in which contributions to the plan are made. The schedule of employer allocations for 2022 and 2021, based on employer contributions made for the 2023 fiscal year and 2022 fiscal year, respectively, shows the proportionate relationship of each employer's contribution to all employers.

	2022		2021	
Entity	Employer Contribution	Proportionate Share of Total Employer Contribution	Employer Contribution	Proportionate Share of Total Employer Contribution
City of Lawrence	21,283,738	89.617218%	20,609,281	90.292456%
Greater Lawrence Regional Vocational Tech	1,259,661	5.303923%	1,119,484	4.904633%
Lawrence Housing Authority	1,089,113	4.585815%	983,300	4.307990%
MVRTA	117,096	0.493044%	112,966	0.494922%
Total	**23,749,608**	**100.000000%**	**22,825,031**	**100.000000%**

Exhibit 4.4 - Pension Amounts by Employer

The Schedule of Pension Amounts by Employer is provided in Appendix C. The schedule shows the Net Pension Liability, the various categories of Deferred Outflows of Resources and Deferred Inflows of Resources and Pension Expense for each employer. The schedule includes the differences between expected and actual experience, differences between projected and actual investment earnings and changes of assumptions. Further, each employer is required to recognize Deferred Outflows of Resources and Deferred Inflows of Resources related to (1) the net impact from changes in proportion between periods and (2) differences between actual contributions made by an employer and their proportionate share of contributions.

Each employer's allocation of Pension Expense and Net Pension Liability can be based on the proportion of its contributions to the aggregate amount of employer contributions.

Under GASB 68, gains and losses (investment, experience or assumption changes) and changes in employer's proportionate shares related to pensions are recognized in Pension Expense systematically over time.

The first amortized amounts are recognized in Pension Expense for the year the gain or loss occurs. The remaining amounts are categorized as Deferred Inflows and Deferred Outflows to be recognized in future Pension Expense.

The amortization period differs depending on the source of the gain or loss:

Difference between projected and actual earnings	5 year straight-line amortization
All other amounts	Straight-line amortization over the average expected remaining service lives of all members that are provided with benefits (actives, inactives and retirees) as of the beginning of the measurement period

For 2022:

- Net Pension Liability, Deferred Outflows of Resources, Deferred Inflows of Resources and Pension Expense are allocated to each employer based on its proportionate share of Total Employer Contributions shown in Exhibit 4.3.
- The difference between expected and actual experience is amortized over the average of the expected future service lives of all participants, with the first amortized amount recognized in Pension Expense in the current year. Similar Deferred Outflows of Resources and Deferred Inflows of Resources were established during prior years, with the first amortized amount recognized in Pension Expense in 2016.
- Net difference between projected and actual investment earnings (loss on pension plan investments for 2022) is amortized over 5 years, with the first amortized amount recognized in Pension Expense in the current year. Similar Deferred Outflows of Resources and Deferred Inflows of Resources were established during prior years, with the first amortized amount recognized in Pension Expense in 2014.
- The change in Total Pension Liability as a result of changes in assumptions is amortized over the average of the expected future service lives of all participants, with the first amortized amount recognized in Pension Expense in the current year. Similar Deferred Outflows of Resources and Deferred Inflows of Resources were established during prior years, with the first amortized amount recognized in Pension Expense in 2017.

Exhibit 4.4 - Pension Amounts by Employer

For 2022 (continued):

- The net effect of the difference in the employer's proportionate shares of the collective employer contribution and the actual employer contribution is amortized over the average expected remaining service lives of all members, with the first amortized amount recognized in pension expense in 2015.

- The net effect of the change in the employer's proportionate shares of the collective Net Pension Liability, collective Deferred Outflows and Deferred Inflows is amortized over the average expected remaining service lives of all members, with the first amortized amount recognized in Pension Expense in the current year. Similar Deferred Outflows of Resources and Deferred Inflows of Resources were established during prior years, with the first amortized amount recognized in 2015.

- No adjustments have been made for employer contributions made subsequent to the measurement date as defined in paragraph 57 of GASB 68.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of projected benefit payments to the current year (Service Cost) and the past (Total Pension Liability).

Actuarial (Experience) Gain or Loss – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value of Projected Benefit Payments – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Actuarially Determined Contribution – A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

Actuarial Valuation Date – The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

Covered Payroll – The payroll on which contributions to a pension plan are based.

Deferred Inflow of Resources – Acquisition of resources by a government that is applicable to future reporting periods. Under GASB 68, deferred inflows of resources are made up of experience gains, assumption changes reducing the Total Pension Liability and investment gains that are recognized in future reporting periods.

Deferred Outflow of Resources – Consumption of resources by a government that is applicable to future reporting periods. Under GASB 68, deferred outflows of resources are made up of experience losses, assumption changes increasing the Total Pension Liability and investment losses that are recognized in future reporting periods.

Discount Rate – Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of:

(1) a long-term expected rate of return on pension plan investments *to the extent that the pension plan's assets are sufficient to pay benefits and pension plan assets are expected to be invested using a strategy to achieve that return* and

(2) a tax-exempt, high-quality municipal bond rate *to the extent that the conditions for use of the long-term expected rate of return are not met.*

Entry Age Normal Actuarial Cost Method – A method under which the actuarial present value of the projected benefits of each individual in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age.

Fiduciary Net Position – The fair market value of assets as of the measurement date.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

GASB – Governmental Accounting Standards Board.

Long-Term Expected Rate of Return – Long-term expected rate of return on pension plan investments expected to be used to finance the payment of benefits, net of investment expenses.

Measurement Date – The date as of which the Total Pension Liability and Fiduciary Net Position are measured.

Municipal Bond Rate – Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

Net Pension Liability – The liability of the employer for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Fiduciary Net Position.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Reporting Date – The last day of the Plan or employer's fiscal year.

Service Cost – The portion of the actuarial present value of projected benefit amounts that is attributed to a valuation year.

Total Pension Liability – The portion of the actuarial present value of projected benefit amounts that is attributed to past periods of employee service using the Entry Age Normal cost method based on the requirements of GASB 67 and GASB 68.

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

APPENDIX A - CALCULATION OF MONEY-WEIGHTED RATE OF RETURN

	Plan Investments/ Net External Cash Flows (a)	Periods Invested (b)	Period Weight (c)=(b)÷12	(d)=(a) x $(1+r_{mw})^{(c)}$
Beginning value - January 1, 2022	$ 342,659,255	12	1.00	$ 304,025,736
Monthly net external cash flows:				
January	(2,155,754)	11	0.92	(1,931,863)
February	(2,154,587)	10	0.83	(1,950,162)
March	(2,435,658)	9	0.75	(2,226,652)
April	(1,657,487)	8	0.67	(1,530,437)
May	(2,063,006)	7	0.58	(1,923,956)
June	(644,320)	6	0.50	(606,911)
July	19,947,156	5	0.42	18,977,294
August	(2,827,325)	4	0.33	(2,716,804)
September	(1,814,554)	3	0.25	(1,761,091)
October	(2,008,151)	2	0.17	(1,968,511)
November	(1,876,391)	1	0.08	(1,857,779)
December	(1,614,667)	0	0.00	(1,614,667)
Ending value - December 31, 2022				$ 302,914,197

Money-weighted rate of return	-11.27%

Note: Beginning and ending values are based on amounts reported in the System's 2022 Annual Statement, and monthly cash flows are based on amounts provided by the Retirement Board.

APPENDIX B - SCHEDULE OF DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES

Year	Differences between Expected and Actual Experience	Recognition Period (Years)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2016	(11,573,571)	6.90	(1,509,597)	-	-	-	-	-	-	-	-	-
2017	1,144,843	6.10	187,679	18,769	-	-	-	-	-	-	-	-
2018	-	6.10	-	-	-	-	-	-	-	-	-	-
2019	(5,276,741)	6.00	(879,457)	(879,457)	(879,456)	-	-	-	-	-	-	-
2020	-	6.00	-	-	-	-	-	-	-	-	-	-
2021	(13,283,146)	5.38	(2,468,986)	(2,468,986)	(2,468,986)	(2,468,986)	(938,216)	-	-	-	-	-
2022	-	5.38	-	-	-	-	-	-	-	-	-	-
Net Increase (Decrease) in Pension Expense			(4,670,361)	(3,329,674)	(3,348,442)	(2,468,986)	(938,216)	-	-	-	-	-

Year	Changes of Assumptions	Recognition Period (Years)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2016	-	6.90	-	-	-	-	-	-	-	-	-	-
2017	9,356,284	6.10	1,533,817	153,382	-	-	-	-	-	-	-	-
2018	-	6.10	-	-	-	-	-	-	-	-	-	-
2019	6,640,447	6.00	1,106,741	1,106,741	1,106,742	-	-	-	-	-	-	-
2020	-	6.00	-	-	-	-	-	-	-	-	-	-
2021	8,496,574	5.38	1,579,289	1,579,289	1,579,289	1,579,289	600,129	-	-	-	-	-
2022	-	5.38	-	-	-	-	-	-	-	-	-	-
Net Increase (Decrease) in Pension Expense			4,219,847	2,839,412	2,686,031	1,579,289	600,129	-	-	-	-	-

APPENDIX B - SCHEDULE OF DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES

Year	Differences between Projected and Actual Earnings on Pension Plan Investments	Recognition Period (Years)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2016	826,668	5	-	-	-	-	-	-	-	-	-	-
2017	(18,114,834)	5	-	-	-	-	-	-	-	-	-	-
2018	22,259,572	5	4,451,915	-	-	-	-	-	-	-	-	-
2019	(18,770,783)	5	(3,754,157)	(3,754,155)	-	-	-	-	-	-	-	-
2020	(12,389,477)	5	(2,477,895)	(2,477,896)	(2,477,896)	-	-	-	-	-	-	-
2021	(35,533,202)	5	(7,106,640)	(7,106,640)	(7,106,641)	(7,106,641)	-	-	-	-	-	-
2022	62,741,107	5	12,548,221	12,548,221	12,548,221	12,548,222	12,548,222	-	-	-	-	-
Net Increase (Decrease) in Pension Expense			3,661,444	(790,470)	2,963,684	5,441,581	12,548,222	-	-	-	-	-

APPENDIX C - SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

Pension Amounts as of December 31, 2022	Lawrence Contributory Retirement System	City of Lawrence
♦ Current Proportionate Share		89.617218%
♦ Prior Proportionate Share		90.292456%
Beginning Net Pension Liability	$ 153,737,435	$ 138,813,305
Ending Net Pension Liability	$ 211,821,438	$ 189,828,479
Total Deferred Outflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 18,769	$ 16,820
♦ Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	20,163,017	18,069,534
♦ Changes of Assumptions	7,704,861	6,904,882
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	760,197
Total Deferred Outflows of Resources	$ 30,657,323	$ 25,751,433
Total Deferred Inflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 10,104,087	$ 9,055,001
♦ Changes of Assumptions	-	-
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	1,797,641
Total Deferred Inflows of Resources	$ 12,874,763	$ 10,852,642
Employer Pension Expense:		
♦ Proportionate Share of Plan Pension Expense	$ 22,303,434	$ 19,987,717
♦ Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	(589,113)
Total Employer Pension Expense	$ 22,303,434	$ 19,398,604
Covered Payroll:	$ 79,937,853	$ 71,203,744
Sensitivity of the Net Pension Liability to Changes in the Discount Rate:		
♦ Current discount rate: 7%	$ 211,821,438	$ 189,828,480
♦ 1% decrease in the discount rate: 6%	$ 268,429,419	$ 240,558,978
♦ 1% increase in the discount rate: 8%	$ 160,673,456	$ 143,991,081
Deferred Outflows of Resources and Deferred Inflows of Resources Recognized in Future Pension Expense:		
♦ 2023	$ (1,280,732)	$ (1,486,793)
♦ 2024	$ 2,301,273	$ 1,702,148
♦ 2025	$ 4,551,884	$ 4,071,006
♦ 2026	$ 12,210,135	$ 10,705,664
♦ 2027	$ -	$ (93,234)
♦ Thereafter	$ -	$ -

APPENDIX C - SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

Pension Amounts as of December 31, 2022	Lawrence Contributory Retirement System	Greater Lawrence Regional Vocational Tech
♦ Current Proportionate Share		5.303923%
♦ Prior Proportionate Share		4.904633%
Beginning Net Pension Liability	$ 153,737,435	$ 7,540,257
Ending Net Pension Liability	$ 211,821,438	$ 11,234,847
Total Deferred Outflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 18,769	$ 995
♦ Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	20,163,017	1,069,431
♦ Changes of Assumptions	7,704,861	408,660
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	962,224
Total Deferred Outflows of Resources	$ 30,657,323	$ 2,441,310
Total Deferred Inflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 10,104,087	$ 535,913
♦ Changes of Assumptions	-	-
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	142,972
Total Deferred Inflows of Resources	$ 12,874,763	$ 678,885
Employer Pension Expense:		
♦ Proportionate Share of Plan Pension Expense	$ 22,303,434	$ 1,182,957
♦ Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	459,917
Total Employer Pension Expense	$ 22,303,434	$ 1,642,874
Covered Payroll:	$ 79,937,853	$ 4,435,838
Sensitivity of the Net Pension Liability to Changes in the Discount Rate:		
♦ Current discount rate: 7%	$ 211,821,438	$ 11,234,847
♦ 1% decrease in the discount rate: 6%	$ 268,429,419	$ 14,237,291
♦ 1% increase in the discount rate: 8%	$ 160,673,456	$ 8,521,997
Deferred Outflows of Resources and Deferred Inflows of Resources Recognized in Future Pension Expense:		
♦ 2023	$ (1,280,732)	$ 173,683
♦ 2024	$ 2,301,273	$ 362,919
♦ 2025	$ 4,551,884	$ 368,588
♦ 2026	$ 12,210,135	$ 802,103
♦ 2027	$ -	$ 55,132
♦ Thereafter	$ -	$ -

APPENDIX C - SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

Pension Amounts as of December 31, 2022	Lawrence Contributory Retirement System	Lawrence Housing Authority
♦ Current Proportionate Share		4.585815%
♦ Prior Proportionate Share		4.307990%
Beginning Net Pension Liability	**$ 153,737,435**	**$ 6,622,993**
Ending Net Pension Liability	**$ 211,821,438**	**$ 9,713,739**
Total Deferred Outflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 18,769	$ 861
♦ Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	20,163,017	924,639
♦ Changes of Assumptions	7,704,861	353,331
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	902,403
Total Deferred Outflows of Resources	**$ 30,657,323**	**$ 2,181,234**
Total Deferred Inflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 10,104,087	$ 463,355
♦ Changes of Assumptions	-	-
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	827,075
Total Deferred Inflows of Resources	**$ 12,874,763**	**$ 1,290,430**
Employer Pension Expense:		
♦ Proportionate Share of Plan Pension Expense	$ 22,303,434	$ 1,022,794
♦ Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	(36,240)
Total Employer Pension Expense	**$ 22,303,434**	**$ 986,554**
Covered Payroll:	$ 79,937,853	$ 3,811,558
Sensitivity of the Net Pension Liability to Changes in the Discount Rate:		
♦ Current discount rate: 7%	$ 211,821,438	$ 9,713,739
♦ 1% decrease in the discount rate: 6%	$ 268,429,419	$ 12,309,676
♦ 1% increase in the discount rate: 8%	$ 160,673,456	$ 7,368,187
Deferred Outflows of Resources and Deferred Inflows of Resources Recognized in Future Pension Expense:		
♦ 2023	$ (1,280,732)	$ (19,687)
♦ 2024	$ 2,301,273	$ 177,084
♦ 2025	$ 4,551,884	$ 53,570
♦ 2026	$ 12,210,135	$ 641,476
♦ 2027	$ -	$ 38,361
♦ Thereafter	$ -	$ -

Pension Amounts as of December 31, 2022	Lawrence Contributory Retirement System	MVRTA
♦ Current Proportionate Share		0.493044%
♦ Prior Proportionate Share		0.494922%
Beginning Net Pension Liability	$ 153,737,435	$ 760,880
Ending Net Pension Liability	$ 211,821,438	$ 1,044,373
Total Deferred Outflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 18,769	$ 93
♦ Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	20,163,017	99,413
♦ Changes of Assumptions	7,704,861	37,988
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	145,852
Total Deferred Outflows of Resources	$ 30,657,323	$ 283,346
Total Deferred Inflows of Resources:		
♦ Differences Between Expected and Actual Experience	$ 10,104,087	$ 49,818
♦ Changes of Assumptions	-	-
♦ Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	2,770,676	2,989
Total Deferred Inflows of Resources	$ 12,874,763	$ 52,807
Employer Pension Expense:		
♦ Proportionate Share of Plan Pension Expense	$ 22,303,434	$ 109,966
♦ Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	-	165,436
Total Employer Pension Expense	$ 22,303,434	$ 275,402
Covered Payroll:	$ 79,937,853	$ 486,713
Sensitivity of the Net Pension Liability to Changes in the Discount Rate:		
♦ Current discount rate: 7%	$ 211,821,438	$ 1,044,373
♦ 1% decrease in the discount rate: 6%	$ 268,429,419	$ 1,323,475
♦ 1% increase in the discount rate: 8%	$ 160,673,456	$ 792,191
Deferred Outflows of Resources and Deferred Inflows of Resources Recognized in Future Pension Expense:		
♦ 2023	$ (1,280,732)	$ 52,065
♦ 2024	$ 2,301,273	$ 59,122
♦ 2025	$ 4,551,884	$ 58,720
♦ 2026	$ 12,210,135	$ 60,891
♦ 2027	$ -	$ (259)
♦ Thereafter	$ -	$ -

Under GASB 67, a series of projections and calculations are used to determine the discount rate for the purpose of the measurement of the Total Pension Liability. The discount rate is the single rate that reflects (1) the long-term expected rate of return on pension plan investments that are expected to be used to finance the payment of benefits, to the extent that the pension plan's Fiduciary Net Position is projected to be sufficient to make projected benefit payments and pension plan assets are expected to be invested using a strategy to achieve that return, and (2) a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher, to the extent that the conditions for use of the long-term expected rate of return are not met.

Projected cash flows into and out of the pension plan are assumed to be contributions to the pension plan, benefit payments, pension plan administrative expenses and pension plan investment earnings. These projected cash flows are used to project the pension plan's Fiduciary Net Position at the beginning of each period. The pension plan's projected Fiduciary Net Position at the beginning of each period is compared to the amount of benefit payments projected to occur in that period.

It is assumed that the pension plan's Fiduciary Net Position is expected to always be invested using a strategy to achieve the long-term expected rate of return on pension plan investments.

The benefit payments that are projected to occur in a period are discounted using the long-term expected rate of return on pension plan investments if the amount of the pension plan's beginning Fiduciary Net Position is projected to be sufficient to make the benefit payments in that period. In periods in which benefit payments are projected to be greater than the amount of the pension plan's Fiduciary Net Position, they are discounted using a municipal bond rate as required by GASB 67.

For purposes of this valuation, the long-term expected rate of return on pension plan investments is 7%; the municipal bond rate is 3.72%, based on the December 2022 Bond Buyer Index as published by the Federal Reserve. For each period, the pension plan's Fiduciary Net Position is projected to be sufficient to make the benefit payments in that period, therefore, the resulting single discount rate is based solely on the long-term expected rate of return of 7%.