City of Grand Rapids General Retirement System

57th Annual Actuarial Valuation Report

June 30, 2024

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October 14, 2024

Board of Trustees
City of Grand Rapids General
Retirement System
Grand Rapids, Michigan

Dear Board Members:

The results of the ***57th Annual Actuarial Valuation*** of the City of Grand Rapids General Retirement System are presented in this report. The purpose of the annual valuation is to measure the System's funding progress and to determine the City's contribution rate for the ensuing fiscal year in accordance with the established funding policy. The results of the valuation may not be applicable for other purposes.

The date of the valuation was June 30, 2024.

This report should not be relied on for any purpose other than those described above. It was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the Retirement System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The computed contribution rate shown on page A-1 may be considered as a minimum contribution rate that complies with the funding policy stated in the Ordinance. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered.

This valuation assumes the continuing ability of the participating employer to make the contributions necessary to fund this Plan. A determination regarding whether or not the participating employer is actually able to do so is outside our scope of expertise. Consequently, we did not perform such an analysis.

The signing actuaries are independent of the plan sponsor.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

This report was prepared using assumptions adopted by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. The combined effect of the assumptions, excluding prescribed assumptions or methods set by law, is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice.

This valuation was based upon statistical data furnished by your Executive Director concerning Retirement System benefits, financial transactions, individual members, terminated members and retirants and beneficiaries. Data was checked for internal and year-to-year consistency, but was not audited. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided. This information is summarized in Section B.

We have assessed that the contribution rate calculated under the current funding policy is a reasonable Actuarially Determined Employer Contribution (ADEC) and it is consistent with the plan accumulating adequate assets to make benefit payments when due.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report includes risk metrics on pages A-7 and A-8, but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of the assignment.

To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the Retirement System Ordinance.

James D. Anderson and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

James D. Anderson, FSA, EA, FCA, MAAA

Jeffrey T. Tebeau, FSA, EA, FCA, MAAA

JDA/JTT:rmn

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SECTION A

VALUATION RESULTS

Contributions to Provide Benefits for Fiscal Year Beginning July 1, 2025

Contributions for	% of Active Payroll
Normal cost of benefits:	
Age and service pensions	13.47 %
Disability pensions (CRF)	0.38 %
Death-in-service pensions	0.23 %
Refunds of member contributions	1.08 %
Totals	15.16 %
Member contributions (weighted average) #	7.78 %
Employer normal cost	7.38 %
Unfunded actuarial accrued liabilities*	55.64 %
COMPUTED EMPLOYER RATE @	**63.02 %**
PROJECTED DOLLAR CONTRIBUTION	**$12,878,887**

* *Amortized over a weighted-average period of 23.48 years as described beginning on page C-1.*

\# *Weighted average of member contribution rates described on pages B-7 through B-11.*

@ *In addition to this contribution, the City contributes for (i) certain Supplemental Benefits for a small closed group of retirants and beneficiaries in accordance with the provisions of Ordinance Section 1.290, and (ii) between 0.5% and 0.7% of payroll to provide a Medicare Supplement for members retiring after December 31, 1989.*

For comparison, the Computed Employer Rate and Projected Dollar Contribution last year were 60.10% and $13,331,882, respectively.

Allocation of Valuation Assets
Year Ended June 30, 2024

In financing the actuarial accrued liabilities, valuation assets of $460,552,945 were distributed as follows:

	Present Valuation Assets Applied to			
Reserves for	Non-Retired Member Actuarial Accrued Liabilities	Retired Life Actuarial Liabilities	Contingency Reserve	Totals
Member Contributions (MDF)	$ 35,256,051			$ 35,256,051
Employer Contributions (EAF)	(134,075,694)			(134,075,694)
Retired Benefit Payments (BRF)	3,285,834	$428,770,940		432,056,774
Undistributed Income (IEF)	127,315,814			127,315,814
Totals	$ 31,782,005	$428,770,940	$0	$ 460,552,945

Assets were applied against actuarial accrued liabilities in determining unfunded actuarial accrued liabilities as follows:

	Retired Lives	Non-Retired Members	Total
Computed Actuarial Accrued Liabilities and Reserves	$428,770,940	$165,703,572	$594,474,512
Applied Assets	428,770,940	31,782,005	460,552,945
Unfunded Actuarial Accrued Liabilities (Full Funding Credit)	$ 0	$133,921,567	$133,921,567

Derivation of Experience Gain (Loss)
Year Ended June 30, 2024

Actual experience will never (except by coincidence) coincide exactly with assumed experience; sizable year-to-year fluctuations are common. Gains and losses often cancel each other over a period of years. Detail on the derivation of the experience gain (loss) is shown below, along with a year-by-year comparative schedule.

	2023-2024	2022-2023
(1) UAAL* at start of year	$ 140,398,219	$ 136,324,082
(2) Employer normal cost from last valuation	1,861,568	1,927,631
(3) Actual employer contributions	15,712,437	11,918,613
(4) Interest accrual:		
[(1) + ½ [(2) – (3)]] x .0675	9,009,413	8,864,680
(5) Expected UAAL before changes:		
(1) + (2) – (3) + (4)	135,556,763	135,197,780
(6) Increase from benefit changes	none	none
(7) Change from revised actuarial assumptions or valuation methods	none	none
(8) Other Changes	none	none
(9) Expected UAAL after changes:		
(5) + (6) + (7) + (8)	135,556,763	135,197,780
(10) Actual UAAL at end of year	133,921,567	140,398,219
(11) Gain (loss): (9) - (10)	1,635,196	(5,200,439)
(12) Gain (loss) as percent of actuarial accrued liabilities at start of year ($591,068,352)	0.3%	(0.9)%
Gain (Loss) due to investments	$ 282,210	$ (4,010,443)
Gain (Loss) due to liabilities	$ 1,352,986	$ (1,189,996)

* *Unfunded Actuarial Accrued Liabilities.*

Valuation Date June 30	Experience Gain (Loss) as % of Beginning Accrued Liability
2015	0.8 %
2016	(1.4)%
2017	1.1 %
2018	0.5 %
2019	(1.2)%
2020	(1.8)%
2021	2.2 %
2022	(1.2)%
2023	(0.9)%
2024	0.3 %

Summary Statement of System Resources and Obligations
Year Ended June 30, 2024

Present Resources and Expected Future Resources

A.	Present valuation assets:	
	1. Net assets from System financial statements	$458,985,431
	2. Market value adjustment	1,567,514
	3. Valuation assets	$460,552,945
B.	Actuarial present value of expected future employer contributions:	
	1. For normal costs	$ 8,383,466
	2. For unfunded actuarial accrued liability	133,921,567
	3. Total	$142,305,033
C.	Actuarial present value of expected future member contributions	$ 9,589,095
D.	Total present and expected future resources	$612,447,073

Actuarial Present Value of Expected Future Benefit Payments

A.	To retirants and beneficiaries:	
	1. Annual pensions	$428,770,940
	2. Reserve	0
	3. Total	$428,770,940
B.	To vested terminated members	$ 18,204,774
C.	To present active members:	
	1. Allocated to service rendered prior to valuation date - actuarial accrued liability	$147,498,798
	2. Allocated to service likely to be rendered after valuation date	17,972,561
	3. Total	$165,471,359
D.	Total actuarial present value of expected future benefit payments	$612,447,073

Comments, Recommendation and Conclusion

Comment A: Overall experience compared to expectations was favorable during the period ending June 30, 2024 (see page A-3) due primarily to greater than expected retiree mortality which was offset somewhat by greater than expected individual salary increases. The total net gain was $1.6 million, of which $0.3 million was related to investment experience and $1.3 million was due to demographic experience.

Comment B: The Actuarial Value exceeded the Market of Assets by $1.6 million as of June 30, 2024. Note that the ratio of assets computed under funding value relative to the market value of assets is 100% ($460 million and $459 million, respectively).

Comment C: Below is a five-year contribution rate projection in the case where all assumptions for future experience are exactly realized. Additional detail on the amortization method used for the projection is provided on page C-1.

6.75% Market Return											
Year	Applicable Contribution FY Ended June 30	Employer Normal Cost	Amortization Payment	Total Employer Rate	Projected Employer Contribution ($ Millions)	Funded Ratio	Funding Value ($ Millions)	Market Value ($ Millions)	FV Return	MV Return	MV-FV
2024	2026	7.38%	55.64%	63.02%	$12.9	77%	$ 460.6	$ 459.0	6.81%	9.86%	$ (1.6)
2025	2027	7.20%	58.72%	65.92%	12.3	79%	476.0	469.2	7.89%	6.75%	(6.8)
2026	2028	7.06%	69.34%	76.40%	13.0	78%	476.7	480.0	4.48%	6.75%	3.3
2027	2029	6.94%	77.28%	84.22%	12.7	79%	489.2	491.6	7.00%	6.75%	2.3
2028	2030	6.84%	87.37%	94.21%	12.4	80%	503.9	503.9	7.26%	6.75%	0.1

All measurements are as of the stated valuation year with rates applicable to the stated fiscal year.

Recommendation for Regular Reserve Transfer: Inter-fund transfers are made either when: (i) there is a residual June 30 balance in the Income-Expense Fund (IEF) after regular interest credits have been made; or (ii) the year-end balance in the Benefit Reserve Fund (BRF) falls below the present value of benefits currently being paid. Transfers will be made between the appropriate funds so that the ending balances in the IEF and BRF are $0 and $428,770,940, respectively.

Conclusion: The City's contribution rate for the fiscal year beginning July 1, 2025 has been computed to be 63.02% of active member payroll based on the funding policy specified in the retirement ordinance.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected System Contributions and Funded Status

Given the System's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the System earning 6.75% on the actuarial value of assets), it is expected that:

1) The employer normal cost as a percentage of pay will decrease to the level of the benefit provisions for members hired after 2004 (for most employee groups) as time passes and the majority of the active population is comprised of members hired after this date;
2) The unfunded actuarial accrued liabilities will be fully amortized as of June 30, 2055 (see page C-2); and
3) The funded status of the plan will increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1) The measurement is inappropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligations; for example, transferring the liability to an unrelated third party in a market value type transaction.
2) The measurement is dependent upon the actuarial cost method which, in combination with the System's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the System would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2024	2023	2022	2021	2020
Ratio of the market value of assets to total payroll	19.8	17.6	17.1	17.7	14.0
Ratio of actuarial accrued liability to payroll	25.7	23.9	22.8	20.4	19.3
Ratio of actives to retirees and beneficiaries	0.2	0.3	0.3	0.3	0.4
Ratio of net cash flow to market value of assets	(4.4)%	(5.3)%	(5.7)%	(4.3)%	(5.1)%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Low-Default-Risk Obligation Measure

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the "Low-Default-Risk Obligation Measure" (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

"The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure is **not intended to suggest that this is the "right" liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**"

Comparing the Accrued Liabilities and the LDROM

One of the fundamental financial objectives of the City of Grand Rapids General Retirement System is to finance each member's retirement benefits over the period from the member's date of hire until the member's projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities is set equal to the **expected return** on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). The current investment return assumption is 6.75%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the June 2024 Treasury Yield Curve Spot Rates (end of month). The 1-, 5-, 10- and 30-year rates follow: 5.12%, 4.34%, 4.22% and 4.45%. This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation.

The difference between the two measures (Valuation and LDROM) is one illustration of the savings the sponsor anticipates by taking on risk in a diversified portfolio.

Accrued Liabilities and LDROM

Valuation Accrued Liabilities	LDROM
$594,474,512	$760,809,889

Benefit Reserve Fund
Comparative Statement

Valuation Date	Pensions Being Paid # No.	$/Month	BRF Assets	Actuarial Accrued Liabilities		Assets/ Liabilities
6/30/00	760	$ 842,336	$ 95,495,173	$ 97,823,364		97.6%
6/30/01 @	776	912,560	103,845,535	108,962,016		95.3%
6/30/02	844	1,177,287	111,628,579	115,595,412	*	96.6%
6/30/03	823	1,196,319	143,899,020	142,984,548	**	100.6%
6/30/04	810	1,201,433	145,869,450	145,138,248		100.5%
6/30/05	818	1,254,783	150,763,627	150,637,824		100.1%
6/30/06 @	850	1,381,419	164,111,269	169,274,820		96.9%
6/30/07	901	1,509,551	187,416,077	185,255,424		101.2%
6/30/08	943	1,715,019	213,985,562	212,537,508		100.7%
6/30/09	961	1,807,846	222,676,313	223,054,392		99.8%
6/30/10 @	1,021	2,056,019	257,677,798	262,955,892		98.0%
6/30/11	1,049	2,159,756	274,749,192	275,881,092		99.6%
6/30/12	1,062	2,216,103	285,796,868	282,293,244		101.2%
6/30/13	1,091	2,302,924	292,544,566	291,907,068		100.2%
6/30/14	1,108	2,374,691	290,106,889	300,190,152		96.6%
6/30/15 @	1,126	2,457,096	288,412,580	325,982,321		88.5%
6/30/16	1,159	2,596,059	298,476,128	343,304,680		86.9%
6/30/17 @	1,183	2,711,831	310,303,589	356,658,739		87.0%
6/30/18 @	1,189	2,797,051	321,172,886	370,421,933		86.7%
6/30/19 @	1,186	2,843,254	376,332,481	378,406,810		99.5%
6/30/20 @	1,189	2,876,161	378,629,755	386,589,984		97.9%
6/30/21	1,180	2,932,488	394,789,493	391,796,041		100.8%
6/30/22 @	1,202	3,071,194	404,796,223	415,441,943		97.4%
6/30/23	1,204	3,129,845	423,094,080	421,042,764		100.5%
6/30/24	**1,204**	**3,208,777**	**432,056,774**	**428,770,940**		**100.8%**

@ Revised actuarial assumptions.

** Not including July 1, 2002 retirements. Total liability including July window retirements was $145,321,248.*

*** Not including July 1, 2003 retirements. Total liability including July window retirements was $146,183,328.*

 # Includes disability benefits beginning with the 6/30/2007 valuation.

Actuarial Accrued Liabilities and Assets
Historical Comparative Schedule
($ Amounts in Millions)

Valuation Date	Valuation Assets	Actuarial Accrued Liability Dollar Amount	Actuarial Accrued Liability Funded Ratio[1]	Unfunded Actuarial Accrued Liability Dollar Amount	Unfunded Actuarial Accrued Liability Ratio to Payroll [2]	Unfunded Actuarial Accrued Liability Financing Period
6/30/95 *	$ 161.1	$ 192.5	83.7 %	$ 31.4	76.6 %	22
6/30/96 *@	198.4	205.5	96.6 %	7.1	16.4 %	21
6/30/97	220.9	217.8	101.4 %	(3.1)	-	20
6/30/98	244.0	231.9	105.2 %	(12.0)	-	19
6/30/99	269.1	245.4	109.6 %	(23.7)	-	18
6/30/00	286.1	257.1	111.3 %	(29.0)	-	17
6/30/01 *@	290.5	269.5	107.8 %	(21.0)	-	16
6/30/02	282.8	285.3	99.1 %	2.5	5.1 %	15
6/30/03 *	270.6	297.6	90.9 %	26.9	52.7 %	14
6/30/04	282.2	307.8	91.7 %	25.6	49.4 %	13
6/30/05 *	305.5	334.6	91.3 %	29.0	54.3 %	15
6/30/06 @	352.5	352.9	99.9 %	0.3	0.6 %	14
6/30/07 *	391.7	368.9	106.2 %	(22.8)	-	13
6/30/08 #	398.8	377.0	105.8 %	(21.8)	-	30
6/30/09	381.1	391.3	97.4 %	10.2	19.7 %	29
6/30/10 *@	366.5	435.9	84.1 %	69.4	140.6 %	28
6/30/11 *	360.3	445.8	80.8 %	85.5	174.3 %	27
6/30/12	349.5	448.9	77.9 %	99.4	215.3 %	26
6/30/13	353.3	455.9	77.5 %	102.6	234.4 %	25
6/30/14	385.2	460.6	83.6 %	75.4	186.2 %	24
6/30/15 *@	401.7	500.2	80.3 %	98.5	255.8 %	30
6/30/16	404.1	510.3	79.2 %	106.2	297.1 %	29
6/30/17 @	418.0	517.0	80.9 %	99.0	294.3 %	28.2
6/30/18 @	427.0	527.0	81.0 %	100.0	323.0 %	27.19
6/30/19 @	429.1	539.3	79.6 %	110.2	371.0 %	26.54
6/30/20 @	427.0	557.6	76.6 %	130.6	452.3 %	26.2
6/30/21	445.7	563.6	79.1 %	117.9	426.2 %	25.53
6/30/22 @	448.4	584.7	76.7 %	136.3	532.4 %	25.15
6/30/23	450.7	591.1	76.2 %	140.4	566.7 %	24.35
6/30/24	**460.6**	**594.5**	**77.5 %**	**133.9**	**578.8 %**	**23.48**

** Retirement System amended.*
@ Revised actuarial assumptions.
 # Revised asset valuation method.

[1] ***Valuation Assets as a Percent of AAL*** is a traditional measure of a System's funding progress. Except in years when the System is amended or actuarial assumptions are revised, this percent can be expected to move gradually toward 100%.

[2] ***UAAL as a Percent of Valuation Payroll*** is another relative index of condition. Unfunded Actuarial Accrued Liabilities (UAAL) represent debt, while active member payroll represents the System's capacity to collect contributions to pay toward debt. The lower the percent, the greater the financial strength and vice versa.

City and Member Contributions
Historical Comparison

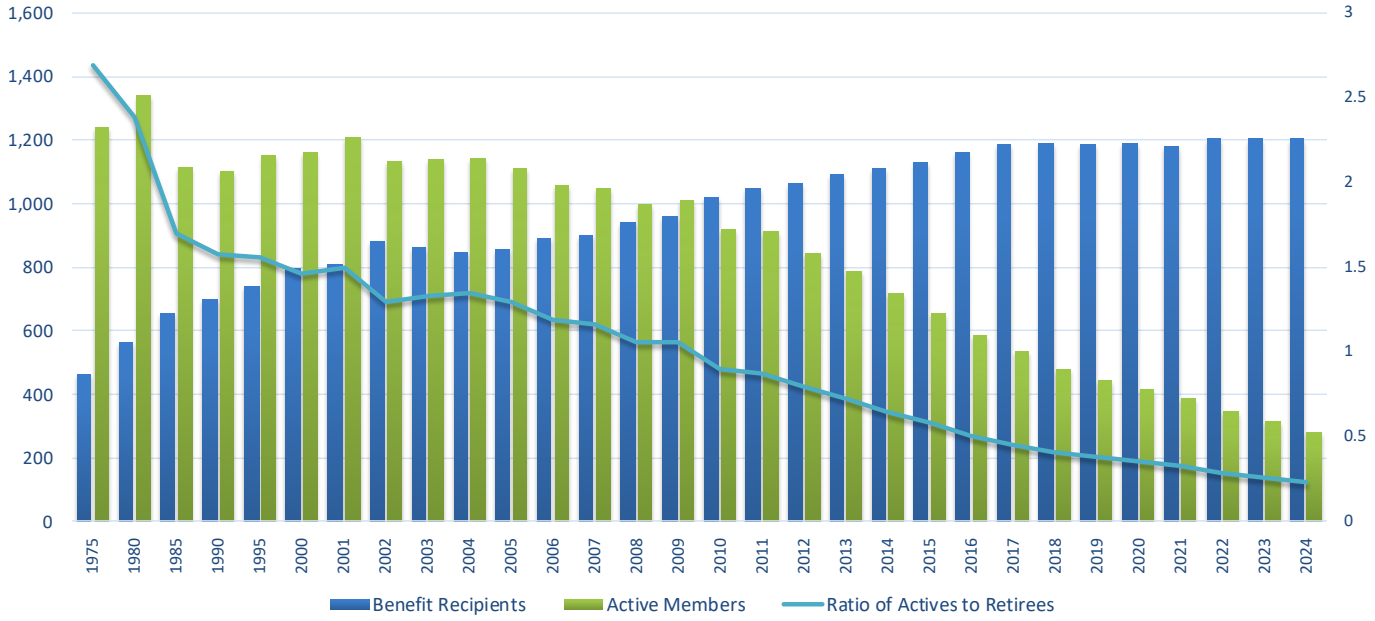
Valuation Date	Fiscal Year	Computed Contributions as %'s of Active Member Payroll		
		Member	Employer	Total
6/30/89	90/91	4.02%	12.30%	16.32%
6/30/90*	91/92	3.28%	13.85%	17.13%
6/30/91	92/93	3.28%	13.91%	17.19%
6/30/92@	93/94	3.28%	16.42%	19.70%
6/30/93	94/95	3.30%	16.34%	19.64%
6/30/94	95/96	3.21%	16.85%	20.06%
6/30/95*	96/97	3.24%	16.91%	20.15%
6/30/96@	97/98	3.25%	11.75%	15.00%
6/30/97	98/99	3.25%	10.33%	13.58%
6/30/98@	99/00	3.25%	5.20%	8.45%
6/30/99	00/01	3.25%	0.43%	3.68%
6/30/00	01/02	3.25%	0.00%	3.25%
6/30/01*@	02/03	3.18%	2.55%	5.73%
6/30/02	03/04	3.17%	12.05%	15.22%
6/30/04	05/06	3.24%	16.24%	19.48%
6/30/05*	06/07	3.95%	16.41%	20.36%
6/30/06@	07/08	3.94%	11.86%	15.80%
6/30/07*	08/09	3.98%	7.70%	11.68%
6/30/08*	09/10	4.18%	9.29%	13.47%
6/30/09	10/11	3.93%	13.12%	17.05%
6/30/10*@	11/12	4.41%	20.13%	24.54%
6/30/11*	12/13	9.05%	18.01%	27.06%
6/30/12	13/14	7.96%	20.64%	28.60%
6/30/13	14/15	7.93%	28.25%	36.18%
6/30/14	15/16	7.90%	24.38%	32.28%
6/30/15*@	16/17	7.96%	29.15%	37.11%
6/30/16	17/18	7.98%	32.85%	40.83%
6/30/17@	18/19	7.94%	32.25%	40.19%
6/30/18@	19/20	7.86%	34.74%	42.60%
6/30/19@	20/21	7.79%	39.31%	47.10%
6/30/20@	21/22	7.76%	47.17%	54.93%
6/30/21	22/23	7.75%	46.19%	53.94%
6/30/22@	23/24	7.81%	55.54%	63.35%
6/30/23	24/25	7.84%	60.10%	67.94%
6/30/24	**25/26**	**7.78%**	**63.02%**	**70.80%**

* *Retirement System amended.*
@ Revised actuarial assumptions.

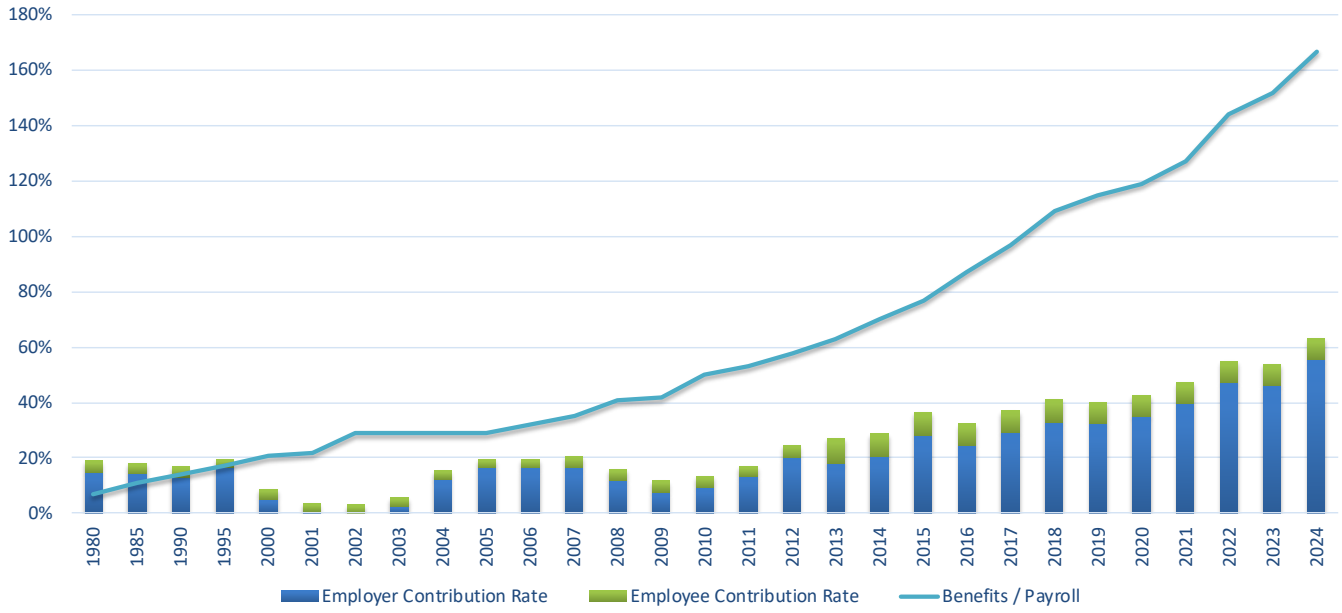
Active Members and Retired Lives
Historical Comparative Schedule

Valuation Date	Active Members				Retired Lives			
		Valuation Payroll				Active per	Annual Benefits	
	No.	$ Millions	Average	% Incr.	No.	Retired	$ Millions	As a % of Pay
6/30/95	1,153	$ 41.0	$ 35,573	1.7 %	741	1.6	$ 6.8	16.6%
6/30/96	1,176	43.3	36,790	3.4 %	728	1.6	7.1	16.4%
6/30/97	1,148	43.2	37,597	2.2 %	760	1.5	8.2	18.9%
6/30/98	1,150	43.9	38,145	1.5 %	782	1.5	9.1	20.7%
6/30/99	1,177	47.6	40,479	6.1 %	774	1.5	9.5	20.0%
6/30/00	1,162	48.9	42,051	3.9 %	795	1.5	10.4	21.3%
6/30/01	1,210	52.3	43,259	2.9 %	811	1.5	11.3	21.6%
6/30/02	1,135	49.2	43,357	0.2 %	879	1.3	14.5	29.4%
6/30/03	1,139	51.0	44,781	3.3 %	859	1.3	14.7	28.9%
6/30/04	1,142	51.8	45,317	1.2 %	847	1.3	14.9	28.7%
6/30/05	1,108	53.5	48,241	6.5 %	857	1.3	15.5	29.0%
6/30/06	1,056	52.8	50,036	3.7 %	888	1.2	17.1	32.3%
6/30/07	1,050	52.4	49,930	(0.2)%	901	1.2	18.1	34.6%
6/30/08	997	50.0	50,121	0.4 %	943	1.1	20.6	41.2%
6/30/09	1,012	51.8	51,194	2.1 %	961	1.1	21.7	41.9%
6/30/10	919	49.3	53,685	4.9 %	1,021	0.9	24.7	50.0%
6/30/11	911	49.0	53,832	0.3 %	1,049	0.9	25.9	52.9%
6/30/12	844	46.2	54,701	1.6 %	1,062	0.8	26.6	57.6%
6/30/13	786	43.8	55,704	1.8 %	1,091	0.7	27.6	63.1%
6/30/14	717	40.5	56,501	1.4 %	1,108	0.6	28.5	70.4%
6/30/15	653	38.5	58,947	4.3 %	1,126	0.6	29.5	76.6%
6/30/16	586	35.8	61,024	3.5 %	1,159	0.5	31.2	87.0%
6/30/17	533	33.6	63,128	3.4 %	1,183	0.5	32.5	96.8%
6/30/18	479	30.9	64,614	2.4 %	1,189	0.4	33.6	108.6%
6/30/19	446	29.7	66,583	3.0 %	1,186	0.4	34.1	114.9%
6/30/20	418	28.9	69,074	3.7 %	1,189	0.4	34.5	119.4%
6/30/21	387	27.7	71,465	3.5 %	1,180	0.3	35.2	127.0%
6/30/22	345	25.6	74,222	3.9 %	1,202	0.3	36.9	143.9%
6/30/23	314	24.8	78,894	6.3 %	1,204	0.3	37.6	151.5%
6/30/24	**281**	**23.1**	**82,345**	**4.4 %**	**1,204**	**0.2**	**38.5**	**166.7%**
20-Year Average				3.0 %				

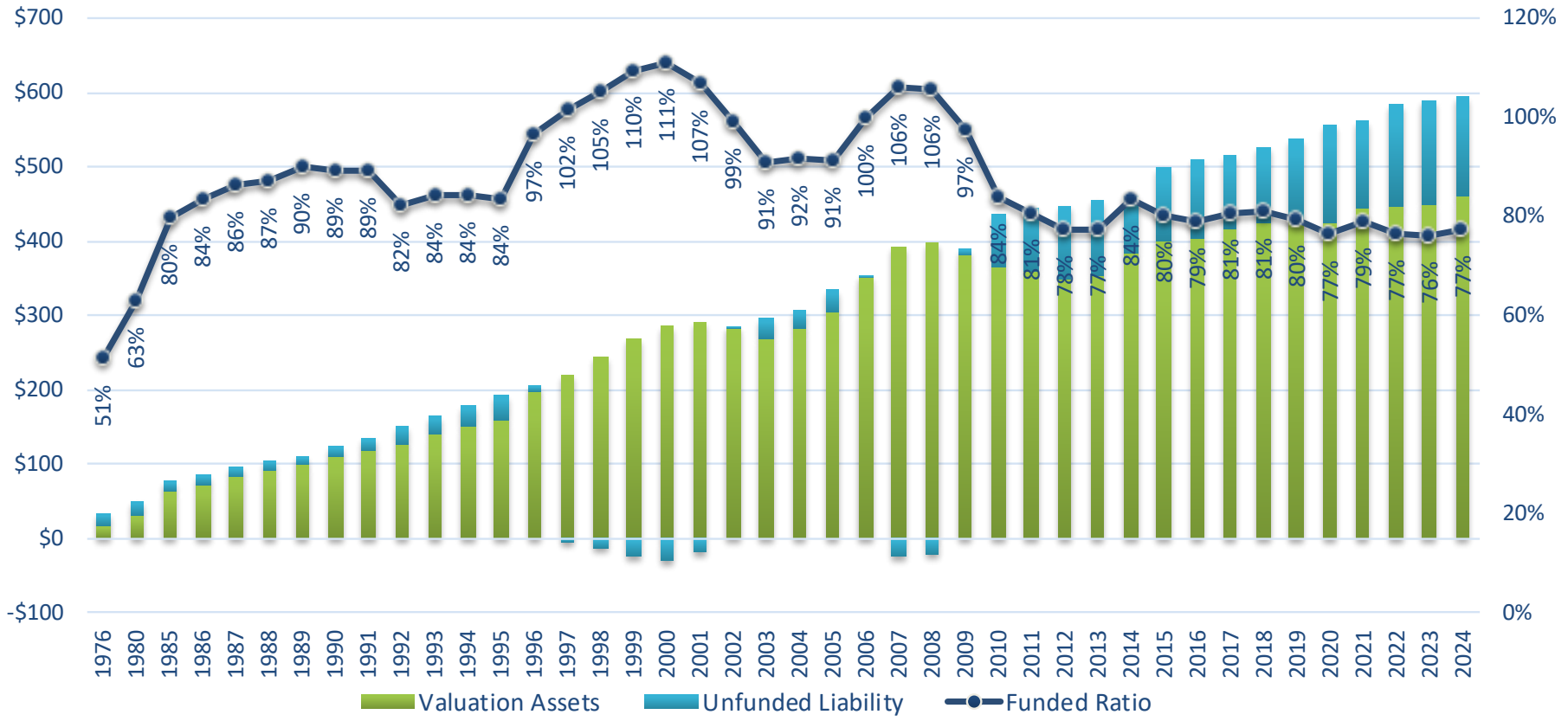
Active Members and Benefit Recipients



Contributions and Benefits as a Percent-of-Payroll



Actuarial Accrued Liabilities and Assets



SECTION B

VALUATION DATA

Summary of Benefit Provisions Evaluated
(June 30, 2024)

Voluntary Retirement. A member may retire after 30 years of service regardless of age, or after attaining age 62 and completing 8 years of service. Effective January 1, 2001, members covered by the Emergency Communications Operators Bargaining Unit, may retire after attaining age 55 and completing 8 years of service.

Final Average Salary (FAS). The average of member's highest annual salary rates, all before completion of the calendar year in which the member attains 40 years of service or reaches the benefit cap, during the three calendar years of credited service when such salary rates were the highest.

Members of the Crime Scene Technicians group have an additional sum added to their FAS, effective July 1, 2000. The sum is calculated based on an average of the group's additional compensation items during the previous three calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Emergency Communication Operators I, II, and III also have an additional sum added to their FAS, effective July 1, 2005. The sum is calculated based on an average of the group's additional compensation items during the previous five calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Members who retire with 10 or more years of continuous service may use up to two thousand eighty (2,080) hours (1,265 for Crime Scene Technician members) of accumulated sick leave to purchase up to one (1) year of additional credited service, on a pro rata basis.

Full Age and Service Allowance. The members' benefit multipliers, used to compute full age and service allowance, are shown in the tables on the following pages.

In lieu of this single life-level amount form of payment, a retiring member may elect from several optional forms of payment, each of which is the actuarial equivalent of this single life-level payment form.

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Covered Employee Group	Date of Termination	Benefit Multiplier	Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]
ECO's I, II and III	January 1, 2002 – March 31, 2012	2.7%	
ECO's I, II and III	April 1, 2012 –	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after April 1, 2012 depending on the individual election made by the employee as provided in Section 1.229(10) Bargaining unit members hired on or after January 24, 2012 do not participate in the Retirement System	100% applicable to ECO's I, II and III hired on or before May 6, 2002 90% applicable to ECO's I, II, and III hired from May 7, 2002 – January 23, 2012
GRPOA-Crime Scene Tech/Latent Print Examiners	July 1, 2002 – July 7, 2012	2.7%	100% applicable to CST's hired prior to January 1, 2002 90% applicable to CST's hired from January 1, 2002 – November 14, 2011
GRPOA-Crime Scene Tech/Latent Print Examiners	July 8, 2012 –	2.7% or 2.5% or 2.2% or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(9) Bargaining unit members hired on or after November 15, 2011 do not participate in the Retirement System	100% applicable to CST's hired prior to January 1, 2002 90% applicable to CST's hired from January 1, 2002 – November 14, 2011
APAGR	January 1, 2003 – December 31, 2004	2.6%	97.5% for employees hired prior to January 1, 2005
APAGR	January 1, 2005 – June 11, 2011	2.7%	
APAGR	June 12, 2011 –	2.7% or 2.5% or 2.2% for future service from and after June 12, 2011, depending on the individual election made by the employee as provided in Section 1.229(3) 2.0% for members hired or re-entering service on or after June 12, 2011	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired from January 1, 2005 – June 30, 2014

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Covered Employee Group	Date of Termination	Benefit Multiplier	Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]
APAGR 61st Dist. Court	January 1, 2003 – December 31, 2004	2.6%	97.5% for employees hired prior to January 1, 2005
APAGR 61st Dist. Court	January 1, 2005 – July 7, 2012	2.7%	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired on or after January 1, 2005 – September 12, 2011
APAGR 61st Dist. Court	July 8, 2012 –	2.7%, or 2.5%, or 2.2%, or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(8) Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	
Non-Represented Members as defined in Section 1.192(18.1)	January 1, 2005 – September 4, 2010	2.7%	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired on or after January 1, 2005
Non-Represented Members as defined in Section 1.192(18.1)	September 5, 2010 –	2.7% or 2.5% or 2.2% for future service from and after September 5, 2010, depending on the individual election made by the employee as provided in Section 1.229(1) 2.0% for non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011 Bargaining unit members hired on or after July 1, 2011 do not participate in the Retirement System	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired from January 1, 2005 – June 30, 2011
61st District Court Judges	January 1, 2005 – January 8, 2011	2.7%	97.5%

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Covered Employee Group	Date of Termination	Benefit Multiplier	Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]
61st District Court Judges	January 9, 2011 –	2.7% or 2.5% or 2.2% for future service from and after January 9, 2011, depending on the individual election made by the employee as provided in Section 1.229(2)	97.5%
Museum Full-Time Supervisory and Administrative Staff and Museum Non-Supervisory Staff	January 1, 2005 – June 30, 2006	2.7%	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired on or after January 1, 2005
Library Management and Confidential Employees	January 1, 2005 – September 4, 2010	2.7%	
EC Supervisors	January 1, 2006 – January 7, 2012	2.7%	90% applicable for all employees entering this unit after July 1, 2004
EC Supervisors	January 8, 2012 –	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after January 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(5) Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	
GREIU	January 1, 2005 – July 7, 2012	2.7%	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired from January 1, 2005 – May 24, 2011
GREIU	July 8, 2012 –	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(4) Bargaining unit members hired on or after May 25, 2011 do not participate in the Retirement System	

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Covered Employee Group	Date of Termination	Benefit Multiplier	Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]
GREIU - Public Library Rank & File and Supervisory Bargaining Units	January 1, 2006 – July 7, 2012	2.7%	
GREIU - Public Library Rank & File and Supervisory Bargaining Units	July 8, 2012 –	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(6) Bargaining unit members hired on or after September 2, 2011 do not participate in the Retirement System	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired from January 1, 2005 – September 1, 2011
GREIU - 61st District Court	January 1, 2005 – July 7, 2012	2.7%	
GREIU - 61st District Court	July 8, 2012 –	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(7) Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	97.5% for employees hired prior to January 1, 2005 94.5% for employees hired from January 1, 2005 – September 12, 2011

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Early Allowance. If a member leaves covered employment after either: (i) completing 20 years of credited service; or (ii) both attaining age 55 and completing 10 years or more of credited service, he can receive an immediate early allowance, computed in the same manner as an age and service allowance based upon salary and service to time of termination but actuarially reduced to reflect the fact that the age when payments begin is younger than age 62.

Deferred Retirement. A member with 8 or more years of credited service who terminates employment before voluntary retirement age and does not withdraw accumulated contributions will be eligible for a deferred allowance beginning at age 62, based upon service and final average salary at time of termination.

Death Benefit. If the member's termination of employment is because of death, a benefit equal to the termination benefit is payable to a beneficiary or estate, as follows:

A refund of accumulated contributions. In addition, a "termination bonus" equivalent to a certain percent of member contributions without interest may be payable. Such percent is 25%, plus 7.5% for each whole year of credited service in excess of 10 years, to a maximum of 100% for 20 or more years of service, times an age-based Termination Bonus Percent.

If the member was eligible for normal or early retirement at the time of death, in lieu of the lump sum death benefit an eligible beneficiary will begin receiving a B-100 joint and survivor pension computed in the same manner as a service retirement pension as if the member had retired the last day of his life.

Or, if the member was not represented by any collective bargaining unit or was represented by the Association of Public Administrators, the Grand Rapids Employees Independent Union or the 61st District Court Employee's Association, and the primary beneficiary was the surviving spouse, the benefit will be computed in the manner described in the preceding paragraph, except that the member will have been assumed to have reached the age for minimum service retirement at the date of his death.

The total amount of death benefit payable cannot exceed 90% of the member's annual rate of compensation at the time of death reduced by any worker's compensation or social security payments.

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Disability Benefit. If a member has 10 or more years of credited service before attaining the minimum service retirement age and becomes totally and permanently disabled, a benefit computed in the same manner as a full age and service benefit is payable. If disablement is a result of performance of duty, the 10-year minimum credited service requirement is waived and the benefit is computed as above with a minimum benefit of 50% (62% for those represented by police bargaining units) of final average salary.

The total amount of benefit payable due to disablement cannot exceed 90% of the member's annual rate of compensation at the time of disablement reduced by any worker's compensation payments, Social Security benefits, (disability benefits), and remuneration from any gainful employment.

Member Contributions. The contribution rates used are defined in the following table:

Member Classification	Period	Contribution Rate
Non-Represented Members, as defined in Section 1.192(18.1), excluding secretarial or clerical members designated as management non-union for payroll purposes, and excluding the Executive Administrative Assistant at the Grand Rapids Public Library	On or before July 1, 1977	3%
	July 2, 1977 to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
	On or after September 5, 2010	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1) 6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Member Classification	Period	Contribution Rate
Non-Represented Members, as defined in Section 1.192(18.1), including only secretarial or clerical members designated as management non-union for payroll purposes, and including the Executive Administrative Assistant at the Grand Rapids Public Library	On or before July 1, 1977	3%
	July 2, 1977 to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
	September 5, 2010 to July 23, 2011	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1) 6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011
	On or after July 24, 2011	8.10% for members who elected a 2.7% multiplier under Section 1.229(1); 6.85% for members who elected a 2.5% multiplier under Section 1.229(1); 5.18% for members who elected a 2.2% multiplier under Section 1.229(1); 4.05% for members with a 2.0% multiplier who were hired or re-entered service from September 5, 2010 through June 30, 2011
Emergency Communications Operators I, II and III represented by GRPOLC	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1990	4%
	January 2, 1990 to January 1, 1991	3%
	January 2, 1991 to December 31, 1996	2%
	January 1, 1997 to June 30, 2005	2.28%
	July 1, 2005 to March 31, 2012	5.36%
	On or after April 1, 2012	10.63%, or 9.38%, or 7.71%, or 6.58%, or 5.36%, depending on the individual election made by the member as provided in Section 1.229(10)

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Member Classification	Period	Contribution Rate
Emergency Communication Supervisors	On or before December 31, 2005	3.28%
	January 1, 2006 to January 7, 2012	6.27%
	On or after January 8, 2012	11.54%, or 10.29%, or 8.62%, or 7.49%, or 6.27%, depending on the individual election made by the member as provided in Section 1.229(5)
Crime Scene Techs/Latent Print Examiners represented by the GRPOA	On or before July 1, 1977	3%
	July 2, 1977 to July 1, 1989	4%
	July 2, 1989 to July 1, 1990	3%
	July 2, 1990 to July 7, 2012	2%
	July 8, 2012 to June 30, 2014	7.27%, or 6.02%, or 4.35%, or 3.22%, or 2.00%, depending on the individual election made by the member as provided in Section 1.229(9)
	On or after July 1, 2014	8.27%, or 7.02%, or 5.35%, or 4.22%, or 3.00%, depending on the individual election made by the member as provided in Section 1.229(9)
GREIU	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1990	4%
	January 2, 1990 to December 31, 1996	3%
	January 1,1997 to December 31, 2004	3.28%
	January 1, 2005 to July 7, 2012	3.89%
	On or after July 8, 2012	9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(4)
GREIU - 61st District Court	Prior to January 1, 1990	4%
	January 1, 1990 to December 31, 1996	3%
	January 1, 1997 to May 31, 2005	3.28%
	June 1, 2005 to July 7, 2012	4%
	On or after July 8, 2012	9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(7)

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Member Classification	Period	Contribution Rate
GREIU – Public Library Rank & File and Supervisory Bargaining Units	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1988	4%
	January 2, 1988 to May 13, 1990	4.91%
	May 14, 1990 to December 31, 1996	4%
	January 1, 1997 to December 31, 2005	3.28%
	January 1, 2006 to July 7, 2012	3.63%
	On or after July 8, 2012	8.90%, or 7.65%, or 5.98%, or 4.85%, or 3.63%, depending on the individual election made by the member as provided in Section 1.229(6)
Library Management and Confidential Employees	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1988	4%
	January 2, 1988 to May 13, 1990	4.91%
	May 14, 1990 to December 31, 1996	4%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
APAGR 61st District Court	Prior to January 1, 1990	4%
	January 1, 1990 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to July 7, 2012	4%
	On or after July 8, 2012	9.27%, or 8.02%, or 6.35%, or 5.22%, or 4.00%, depending on the individual election made by the member as provided in Section 1.229(8)

Summary of Benefit Provisions Evaluated (June 30, 2024) (Continued)

Member Classification	Period	Contribution Rate
Non-Represented Members of the 61st District Court	January 1, 2005 to September 4, 2010	4%
61st District Court Judges	January 1, 2005 to January 8, 2011	4%
61st District Court Judges	On or after January 9, 2011	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(2)
Association of Public Administrators of GR (APAGR)*	Prior to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to June 11, 2011	3.99%
	On or after June 12, 2011	9.26%, or 8.01% or 6.34%, depending on the individual election made by the member as provided in Section 1.229(3) 6.15% for those APAGR members hired or re-entering service on or after June 12, 2011

**[No contribution after completing 39 years of service.]*

Summary of Benefit Provisions Evaluated (June 30, 2024) (Concluded)

If a member terminates employment before any allowance is payable, accumulated contributions (contributions plus regular interest) are refunded.

Employer Contributions. The City contributes the remainder amounts necessary to maintain the Retirement System in sound financial condition in accordance with its funding objectives.

Compensation. Compensation recognized for retirement system purposes includes base pay and longevity pay.

Post-Retirement Increases. Post-retirement benefit increases are 0% unless otherwise stated.

Member Classification	Termination Date	Escalator
GREIU and GREIU-61st District Court	On or after March 24, 2009	1.0%, 4-year delay
GREIU Public Library Rank and File & Supervisory Bargaining Units	On or after July 9, 2009	1.0%, 4-year delay
Crime Scene Techs/Latent Print Examiners represented by the GRPOA	On or after May 12, 2009	1.0%, 6-year delay
Association of Public Administrators and APA 61st District Court	On or after October 21, 2008	1.0%, 4-year delay
EC Supervisors	On or after September 13, 2011	1.0%, 6-year delay
Non-Represented Members	On or after July 1, 2014	1.0%, 7-year delay

13th Check. One-half of net investment income over 8% which is attributable to retired life assets is distributed annually (in January) to retired members and beneficiaries who have been on the retirement rolls for 5 years in the form of a 13th check. Net investment income is based on a market value rate of return averaged over the preceding 5 plan years. The distribution is in proportion to points. An individual's points are determined by multiplying (i) the number of full years of retirement, to a maximum of 15, by (ii) the number of years, and fractions thereof, of service at retirement. Only member classification groups not covered by the post-retirement increase participate in the 13th check program.

Summary of Current Asset Information from Audit Report Furnished for Valuation (Market Value)

Balance Sheet

Reserves for	
Member contributions (MDF)	$ 35,256,051
Employer contributions (EAF)	(134,075,694)
Retired benefit payments (BRF)	432,056,774
Undistributed income (IEF)	125,748,300
Total Reserves	**$ 458,985,431**

Revenues and Expenditures

	2023-24	2022-23
1. Balance - Beginning of Year	$437,015,928	$436,881,613
2. Revenues		
a. Employees' contributions	2,251,542	2,410,147
b. Employer contributions	15,712,437	11,918,613
c. Investment income	43,802,875	24,936,940
d. Other	0	0
e. Total revenues	61,766,854	39,265,700
3. Expenditures		
a. Benefit payments	38,103,889	37,173,621
b. Supplemental pension distribution	0	0
c. Refund of member contributions	0	310,375
d. Expenses	1,693,462	1,647,389
e. Total expenditures	39,797,351	39,131,385
4. Balance - End of Year (1) + (2e) - (3e)	$458,985,431	$437,015,928
Net Investment Income divided by mean assets	9.86%	5.48%

The derivation of valuation assets can be found on page B-14.

Derivation of Section 1.192(25) Valuation Assets

Valuation Date June 30:	2023	2024	2025	2026	2027	2028
A. Funding Value Beginning of Year	$448,353,444	$450,670,133				
B. Market Value End of Year	437,015,928	458,985,431				
C. Market Value Beginning of Year	436,881,613	437,015,928				
D. Non-Investment Net Cash Flow	(23,155,236)	(20,139,910)				
E. Investment Return:						
E1. Market Total: B-C-D	23,289,551	42,109,413				
E2. Assumed Rate	6.75%	6.75%				
E3. Amount for Immediate Recognition	$ 29,482,368	$ 29,740,512				
E4. Amount for Phased-In Recognition	(6,192,817)	12,368,901				
F. Phased-In Recognition of Investment Return:						
F1. Current Year: 0.20 x E4	(1,238,563)	2,473,780				
F2. First Prior Year	(11,689,916)	(1,238,563)	$ 2,473,780			
F3. Second Prior Year	15,632,887	(11,689,916)	(1,238,563)	$ 2,473,780		
F4. Third Prior Year	(4,895,979)	15,632,887	(11,689,916)	(1,238,563)	$ 2,473,780	
F5. Fourth Prior Year	(1,818,872)	(4,895,978)	15,632,888	(11,689,916)	(1,238,565)	$ 2,473,781
F6. Total Recognized Investment Gain (Loss)	(4,010,443)	282,210	5,178,189	(10,454,699)	1,235,215	2,473,781
G. Funding Value End of Year: A+D+E3+F6	450,670,133	460,552,945				
H. Difference Between Market & Funding Values	(13,654,205)	(1,567,514)				
I. Recognized Rate of Return	**5.83%**	**6.81%**				
J. Market Value Rate of Return	5.48%	9.86%				
K. Ratio of Funding Value to Market Value	103.12%	100.34%				

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (line E4) are phased-in over a closed five-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for four consecutive years, funding value will become equal to market value.

Retirants and Beneficiaries Added to and Removed from Rolls
Historical Comparison

Year Ended	Added No.	Added Annual Pensions	Removed No.	Removed Annual Pensions	End of Year No.	End of Year Annual Pensions	Average Pension	Expected Removals No.	Expected Removals Annual Pensions
6/30/95	47	$ 827,242	31	$ 150,977	741	$ 6,836,960	$ 9,227	27.7	$ 141,312
6/30/96	20	377,498	33	157,618	728	7,056,840	9,693	27.6	156,864
6/30/97	63	1,338,277	31	229,628	760	8,165,489	10,744	30.7	193,368
6/30/98	57	1,181,896	35	198,155	782	9,149,230	11,700	31.6	213,648
6/30/99	36	676,928	44	287,106	774	9,539,052	12,324	30.7	206,712
6/30/00	54	1,141,359	33	245,499	795	10,434,912	13,126	31.9	228,360
6/30/01	55	1,135,541	39	271,229	811	11,299,224	13,932	32.3	249,564
6/30/02@	110	3,475,394	42	329,522	879	14,445,096	16,434	33.0	273,432
6/30/03#	26	617,049	46	332,733	859	14,729,412	17,147	29.0	258,660
6/30/04	31	500,033	43	376,241	847	14,853,204	17,536	28.0	271,956
6/30/05	46	1,035,362	36	362,462	857	15,526,104	18,117	28.0	286,716
6/30/06	61	1,786,905	30	253,197	888	17,059,812	19,212	29.0	309,804
6/30/07	46	1,437,154	33	382,354	901	18,114,612	20,105	27.1	308,136
6/30/08	81	2,847,207	39	381,593	943	20,580,226	21,824	27.4	364,236
6/30/09	47	1,517,771	29	403,847	961	21,694,150	22,575	27.4	363,900
6/30/10	106	3,602,038	46	623,965	1021	24,672,223	24,165	28.8	396,696
6/30/11	60	1,683,339	32	438,493	1049	25,917,069	24,706	28.6	432,096
6/30/12	54	1,462,087	41	785,915	1062	26,593,241	25,041	29.4	463,740
6/30/13	63	1,553,921	34	512,079	1091	27,635,082	25,330	30.2	491,052
6/30/14	55	1,521,650	38	660,438	1108	28,496,294	25,719	31.4	534,660
6/30/15	57	1,519,987	39	531,134	1126	29,485,147	26,186	32.0	566,964
6/30/16	79	2,347,225	46	679,662	1159	31,152,711	26,879	30.4	575,508
6/30/17	64	2,048,691	40	659,434	1183	32,541,968	27,508	31.8	622,236
6/30/18	60	2,181,602	54	1,158,962	1189	33,564,608	28,229	31.6	639,144
6/30/19	42	1,394,262	45	839,827	1186	34,119,043	28,768	31.8	674,664
6/30/20	32	1,024,845	29	629,960	1189	34,513,927	29,028	34.2	718,136
6/30/21	46	1,811,051	55	1,135,122	1,180	35,189,856	29,822	32.6	731,087
6/30/22	55	2,380,086	33	715,620	1,202	36,854,322	30,661	34.7	796,201
6/30/23	64	2,067,631	62	1,363,817	1,204	37,558,136	31,194	33.7	818,193
6/30/24	48	2,051,646	48	1,104,459	1,204	38,505,323	31,981	33.7	854,602

@ Includes participants in early retirement window who retired July 1, 2002.
 # Includes participants in early retirement window who retired July 1, 2003.

Retirants and Beneficiary Data as of June 30, 2024
Tabulated by Type of Pensions Being Paid

Type of Pensions Being Paid	No.	Annual Pension
AGE AND SERVICE PENSIONS		
Regular pension - benefit terminating at death of retirant	432	$13,495,506
Option B-100 - 100% joint & survivor (including pop-ups)	305	11,465,996
Option B-75 - 75% joint & survivor (including pop-ups)	99	3,840,096
Option B-50 - 50% joint & survivor (including pop-ups)	92	3,303,357
Option B-25 - 25% joint & survivor (including pop-ups)	49	2,028,296
Survivor beneficiary of deceased retirant	160	2,926,561
Total age and service pensions	1,137	$37,059,812
DISABILITY PENSIONS		
Regular pension - benefit terminating at death of retirant	9	$ 336,462
Option B-100 - 100% joint & survivor (including pop-ups)	9	231,412
Option B-75 - 75% joint & survivor (including pop-ups)	0	0
Option B-50 - 50% joint & survivor (including pop-ups)	1	23,329
Option B-25 - 25% joint & survivor (including pop-ups)	3	49,900
Survivor beneficiary of deceased retirant	16	253,335
Total disability pensions	38	894,438
DEATH-IN-SERVICE PENSIONS	29	551,073
Total Pensions Being Paid	**1,204**	**$38,505,323**

Pensions Being Paid – June 30, 2024
Tabulated by Attained Ages

Attained Ages	Age & Service*		Disability @		Death-in-Service	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
Under 45	3	$ 17,196	1	$ 4,518		
40-44	2	23,025				
45-49	2	21,878	1	22,651	1	$ 36,197
50-54	12	494,897	2	45,387	2	30,790
55-59	37	1,837,562	4	55,431	2	32,659
60-64	137	5,660,180	6	136,348	1	7,365
65-69	236	8,877,739	8	259,056	4	142,739
70-74	296	9,139,864	8	193,613	4	40,130
75-79	186	5,810,064	5	129,827	5	84,806
80-84	120	3,262,029	2	41,572	4	134,297
85-89	65	1,316,506			1	9,027
90-94	31	477,092			4	31,214
95-99	9	116,538			1	1,849
Over 100	1	5,242	1	6,035		
Totals	**1,137**	**$37,059,812**	**38**	**$894,438**	**29**	**$551,073**

	Service*	Disability@	Total
Averages			
Retirement Age	58.2 years	50.3 years	58.0 years
Current Age	72.9 years	67.5 years	72.7 years

* *Includes survivor beneficiaries of age and service retirees.*
@ Includes survivor beneficiaries of disability retirees.

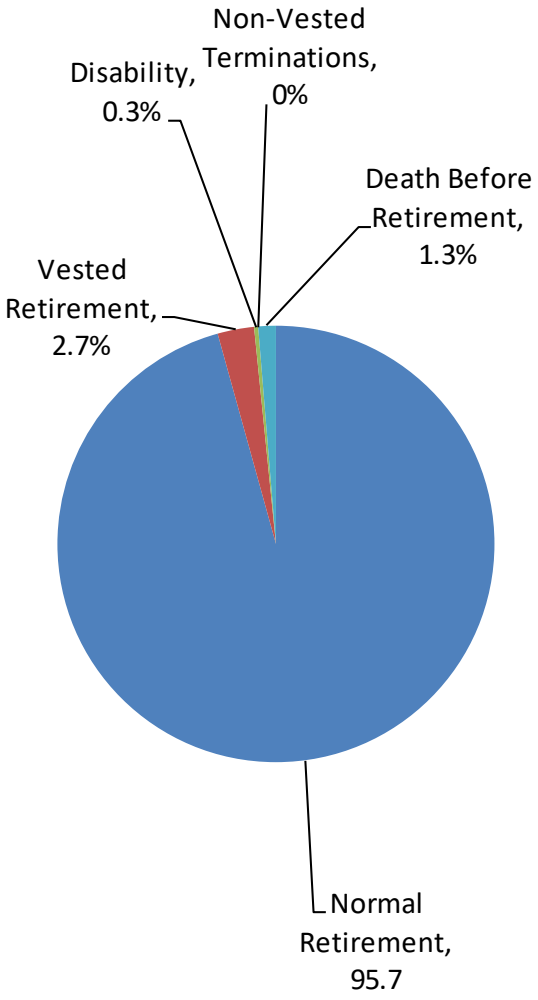
Inactive Vested Members – June 30, 2024
Eligible for Deferred Pensions
Tabulated by Attained Ages

Attained Ages	No.	Estimated Annual Pensions
35-39	3	$ 46,645
40-44	13	245,381
45-49	16	383,672
50-54	23	651,468
55-59	22	580,159
60-64	18	474,349
Total	**95**	**$2,381,674**

Active Members Included in Valuations
Historical Schedule

Year Ended	No.	Annual Payroll $ Millions	Group Averages			
			Annual Pay		Age	Service
			$	Change	Now	Years
6/30/00	1,162	$48.9	$42,051	3.9 %	45.0	13.3
6/30/01	1,210	52.3	43,259	2.9 %	44.9	12.8
6/30/02	1,135	49.2	43,357	0.2 %	44.8	12.1
6/30/03	1,139	51.0	44,781	3.3 %	45.4	12.5
6/30/04	1,142	51.8	45,317	1.2 %	46.1	13.1
6/30/05	1,108	53.5	48,241	6.5 %	46.7	13.7
6/30/06	1,056	52.8	50,036	3.7 %	47.0	13.8
6/30/07	1,050	52.4	49,930	(0.2)%	47.1	13.8
6/30/08	997	50.0	50,121	0.4 %	47.1	13.5
6/30/09	1,012	51.8	51,194	2.1 %	47.4	13.3
6/30/10	919	49.3	53,685	4.9 %	47.5	12.9
6/30/11	911	49.0	53,832	0.3 %	47.4	12.9
6/30/12	844	46.2	54,701	1.6 %	48.0	13.6
6/30/13	786	43.8	55,704	1.8 %	48.6	14.1
6/30/14	717	40.5	56,501	1.4 %	49.2	14.9
6/30/15	653	38.5	58,947	4.3 %	49.8	15.7
6/30/16	586	35.8	61,024	3.5 %	49.9	16.2
6/30/17	533	33.6	63,128	3.4 %	50.2	16.7
6/30/18	479	30.9	64,614	2.4 %	50.5	17.3
6/30/19	446	29.7	66,583	3.0 %	51.1	18.0
6/30/20	418	28.9	69,074	3.7 %	51.9	19.1
6/30/21	387	27.7	71,465	3.5 %	52.4	19.9
6/30/22	345	25.6	74,222	3.9 %	52.6	20.4
6/30/23	314	24.8	78,894	6.3 %	53.1	21.1
6/30/24	281	23.1	82,345	4.4 %	53.5	21.7
20-Year Average				3.0 %		

Ultimate Disposition of Current Active Members as of June 30, 2024



Additions to and Removals from Active Membership
Actual and Expected Numbers

Year Ended	Added During Year		Terminations During Year								End of Year
			Normal Retirement		Disability Retirement		Death-in-Service		Vested & Other Withdrawals		
	A	E	A	E	A	E	A	E	A	E	
6/30/2005	27	61	27	23.5	2	1.4	3	1.4	29	29.3	1,108
6/30/2006	42	94	50	24.4	2	1.5	2	1.5	40	25.8	1,056
6/30/2007	54	60	38	19.5	2	1.5	2	1.6	18	20.6	1,050
6/30/2008	48	101	69	19.5	1	1.4	0	1.5	31	20.4	997
6/30/2009	65	50	29	23.5	3	1.4	1	1.5	17	20.4	1,012
6/30/2010	33	126	80	29.9	2	1.3	1	1.5	43	21.2	919
6/30/2011	51	59	38	30.5	1	1.7	1	1.3	19	22.6	911
6/30/2012	6	73	35	28.9	2	1.7	3	1.3	33	22.9	844
6/30/2013	10	9	35	25.5	3	1.6	0	1.3	30	18.9	786
6/30/2014	5	7	40	29.5	0	1.5	0	1.3	34	15.7	717
6/30/2015*	1	0	36	30.0	3	1.5	0	1.3	26	12.6	653
6/30/2016	3	0	49	44.1	3	0.4	0	1.2	18	10.3	586
6/30/2017	0	0	43	40.7	0	0.4	1	1.1	9	8.6	533
6/30/2018	1	0	37	35.3	0	0.4	0	1.0	18	7.2	479
6/30/2019	0	0	25	30.0	2	0.3	1	1.0	5	5.8	446
6/30/2020	0	0	16	29.9	1	0.2	1	0.9	10	4.4	418
6/30/2021	0	0	24	33.7	1	0.4	0	0.7	6	5.6	387
6/30/2022	0	0	38	38.0	0	0.4	1	0.7	3	4.6	345
6/30/2023	0	0	25	30.8	0	0.3	0	0.6	6	3.8	314
6/30/2024	0	0	29	32.2	0	0.3	0	0.6	4	2.9	281
5-Year Totals	**0**	**0**	**132**	**165**	**2**	**1.6**	**2**	**3.6**	**29**	**21.3**	
10-Year Totals	**5**	**0**	**322**	**345**	**10**	**4.6**	**4**	**9.3**	**105**	**65.8**	

A = Actual
E = Expected

** One member added was due to data adjustments from the prior year.*

Note: Totals may not add due to rounding.

Active Members – June 30, 2024
by Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19									
20-24									
25-29									
30-34									
35-39			3	3				6	$ 493,735
40-44			7	14	6			27	2,323,853
45-49			4	15	20	9		48	3,960,002
50-54			4	17	28	20		69	5,953,616
55-59			6	11	18	35	2	72	5,908,187
60				4	3	1	2	10	675,827
61			1	2	6	6		15	1,103,571
62			2	5	1	2		10	696,751
63				1	3	2	1	7	503,792
64				3		2		5	444,692
65			1	1	2	2		6	470,589
66				1	1	1	1	4	457,481
67									
68				1				1	75,872
69					1			1	71,085
Totals			**28**	**78**	**89**	**80**	**6**	**281**	**$ 23,139,053**

Average Age	Average Service	Average Pay	Number
53.5 years	21.7 years	$82,345	281

SECTION C

SUMMARY OF VALUATION METHODS AND ASSUMPTIONS

Valuation Methods

Age and Service Benefits and Casualty Benefits. Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual entry-age actuarial cost method having the following characteristics:

(i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and

(ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities were amortized by (principal & interest combined) level dollar contributions as according to the schedule below. The weighted average remaining period is 23.48 years. This change was made by the City per City Code Section 1.221 and first reflected in the June 30, 2015 valuation report.

According to City Code Section 1.221, "The pension reserves so determined less the applicable balance in the employer accumulation fund shall be amortized over a period of years, as determined by the employer, to determine the employer's accrued service contribution."

Base Year	Current Balance	Remaining Financing Period	Amortization Factor	Dollar Payment	% of Payroll Contribution
2015	$ 86,899,858	21 yrs.	11.425796	$ 7,605,585	37.22%
2016	7,808,532	22	11.671362	669,033	3.27%
2017	(5,036,362)	23	11.901400	(423,174)	(2.07)%
2018	609,545	24	12.116892	50,305	0.25%
2019	10,792,883	25	12.318758	876,134	4.29%
2020	20,947,626	26	12.507860	1,674,757	8.19%
2021	(10,455,345)	27	12.685005	(824,229)	(4.03)%
2022	19,906,784	28	12.850949	1,549,052	7.58%
2023	6,348,784	29	13.006399	488,128	2.39%
2024	(3,900,738)	30	13.152021	(296,588)	(1.45)%
Total	**$ 133,921,567**	**23.48**	**11.779535**	**$ 11,369,003**	**55.64%**

Projection of Future Amortization Payments

Fiscal Year	Projected Payroll ($ Millions)	UAL (Unfunded Accrued Liability) Amortization Payment ($ Millions)	UAL Amortization Payment %
2026	$20.44	$ 11.37	55.64%
2027	18.69	11.37	60.82%
2028	16.99	11.37	66.92%
2029	15.13	11.37	75.15%
2030	13.17	11.37	86.32%
2031	11.25	11.37	101.07%
2032	9.60	11.37	118.37%
2033	8.20	11.37	138.61%
2034	6.92	11.37	164.30%
2035	5.88	11.37	193.48%
2036	5.07	11.37	224.31%
2037	4.25	11.37	267.33%
2038	3.38	11.37	336.40%
2039	2.57	11.37	442.32%
2040	1.90	11.37	597.19%
2041	1.34	11.37	851.27%
2042	0.87	11.37	1307.51%
2043	0.56	11.37	2034.92%
2044	0.35	11.37	3253.52%
2045	0.20	11.37	5616.87%
2046	0.12	11.37	9856.53%
2047	0.06	3.76	5892.24%
2048	0.03	3.09	9163.49%
2049	0.02	3.52	21567.61%
2050	0.01	3.47	48052.20%
2051	0.00	2.59	85509.70%
2052	0.00	0.92	70575.54%
2053	0.00	1.74	305609.51%
2054	0.00	0.19	82925.01%
2055	0.00	-0.30	-380188.47%
2056	0.00	0.00	0.00%

The schedule above projects future UAL amortization payments based on the current UAL and where all assumptions for future experience are exactly realized. Gains and losses from all risk areas will likely have a material effect on contributions in future years.

The Projected Payroll assumes the Retirement System will have no new active participants. The Amortization Payment % is shown as a percent of this projected payroll.

Actuarial Assumptions Used for the Valuation Adopted by the Board of Trustees

The actuary calculates the contribution requirements and benefit values of the System by applying financial assumptions to the benefit provisions and people information furnished, using the valuation methods described on page C-1.

The principal areas of financial risk which require assumptions about future experiences are:

(i) Long-term rates of investment return to be generated by the assets of the System;
(ii) Patterns of pay increases to members;
(iii) Rates of mortality among members, retirants and beneficiaries;
(iv) Rates of withdrawal of active members (without entitlement to a retirement benefit);
(v) Rates of disability among members; and
(vi) The age patterns of actual retirement.

In a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives – a period of time which can be as long as a century.

Actual experience of the System will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and considers all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations).

The rationale for the assumptions used in this valuation is included in the five-year experience study ending June 30, 2019, approved by the Board in June 2020. The investment return assumption was updated for the June 30, 2022 valuation. All assumptions are expectations of future experience, not market measures.

The rates of salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

Sample Ages	Salary Increase Assumptions for an Individual Member: Merit & Seniority	Base (Economic)	Increase Next Year
20	4.16%	3.00%	7.16%
25	2.88	3.00	5.88
30	1.98	3.00	4.98
35	1.52	3.00	4.52
40	1.10	3.00	4.10
45	0.66	3.00	3.66
50	0.32	3.00	3.32
55	0.14	3.00	3.14
60	0.00	3.00	3.00
65	--	3.00	3.00

Service at Beginning of Year	Additional Service Based Merit/Seniority Portion of Annual Increases: Present
1	4.00%
2	3.00%
3	1.75%
4	1.75%
5	1.75%

If the number of active members remains constant, then the total active member payroll will increase 3.00% annually, the base portion of the individual salary increase assumptions. The 3.00% assumption was first used for the June 30, 2020 valuation.

The rate of investment return was 6.75% a year compounded yearly and was first used for the June 30, 2022 valuation.

The rate of inflation (price) was 2.25% a year compounded yearly. While not explicitly used in the valuation, this assumption was first reflected in the June 30, 2020 valuation.

The mortality tables

- **Healthy Pre-Retirement:** The Pub-2010 Amount-Weighted, General, Employee, Male and Female tables, a base year of 2010 and future mortality improvements projected using scale MP-2019.

- **Healthy Post-Retirement:** The Pub-2010 Amount-Weighted, General, Healthy Retiree, Male and Female tables, with a base year of 2010 and future mortality improvements projected using scale MP-2019.

- **Disability Retirement:** The Pub-2010 Amount-Weighted, General, Disabled Retiree, Male and Female, with a base year of 2010 and future mortality improvements projected using scale MP-2019.

  The following sample rates are based on the Healthy Post-Retirement tables:

Sample Ages in 2024	Value at Retirement of $1 Monthly for Life		Future Life Expectancy (Years)*	
	Male	Female	Male	Female
50	$158.71	$163.18	35.90	38.84
55	151.17	156.79	31.00	33.85
60	141.73	148.47	26.26	28.97
65	130.08	137.73	21.73	24.20
70	115.77	124.23	17.42	19.62
75	99.01	107.94	13.45	15.34
80	80.61	89.45	9.93	11.48

* *Applicable to the year ended June 30, 2024. Life expectancy in future years is based on the MP-2019 projection scale.*

These mortality tables were first used for the June 30, 2020 valuation.

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows. These rates were first used for the June 30, 2020 valuation.

A member is eligible for retirement after completing 30 or more years of service or after both attaining age 62 and completing 8 or more years of service. Prior to the above eligibility, members who are eligible for early reduced retirement are assumed to elect this option at a 3% rate per year until eligible for Normal Retirement.

Normal Unreduced Retirement

Retirement Ages	Percent Retiring	Retirement Ages	Percent Retiring
50	40%	60	40%
51	40	61	40
52	40	62	40
53	40	63	40
54	40	64	40
55	40	65	50
56	40	66	60
57	40	67	70
58	40	68	80
59	40	69	90
		70+	100

Rates of separation from active membership were as follows:

(Rates do not apply to members eligible to retire and do not include separation on account of death or disability.) This assumption measures the probabilities of members remaining in employment. These rates were first used for the June 30, 2020 valuation.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
ALL	0	15.00%	15.00%
	1	8.00	8.00
	2	7.00	7.00
	3	6.00	6.00
	4	5.00	5.00
20	5 & Over	6.04	13.57
25		5.87	13.21
30		5.62	12.35
35		5.22	10.73
40		4.65	8.81
45		3.93	6.80
50		2.75	4.38
55		1.04	1.61
60		0.10	0.15

The rates of disability were as follows:

Sample Ages	% of Active Members Becoming Disabled within Next Year
20	0.01%
25	0.01
30	0.01
35	0.07
40	0.13
45	0.29
50	0.56
55	0.84
60	1.09

		Duty Related	Non-Duty Related
Cause of Disability:	Male	30%	70%
	Female	30%	70%

These rates were first used for the June 30, 2020 valuation.

Miscellaneous and Technical Assumptions
June 30, 2024

Marriage Assumption:	100% of males and females are assumed to be married for purposes of death-in-service benefits.
Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur in the middle of the year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Other Adjustments:	Actuarial accrued liabilities were adjusted as a provision for subsidized service purchases, pending refunds, and other contingent events. Retirement present values were also adjusted for Crime Scene Technicians and ECO to reflect the "gross up factor."
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
Multiplier Election:	Most active members have the option to make higher member contributions and receive a higher benefit multiplier. Individual elections are reported and reflected in the valuation results.
13th Check Payments:	Future liabilities of members in the 13th Check program were increased by 7.5% to account for future payments.
Service Purchases:	Liabilities were increased by $3.6 million to load for service purchases made to date. Members are assumed to purchase one year of service using their accumulated sick leave.

SECTION D

BASIC FINANCIAL OBJECTIVE AND OPERATION OF THE RETIREMENT SYSTEM

Basic Financial Objective and Operation of the Retirement System

Benefit Promises Made Which Must Be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent pension promises to a group of employees. As each member of the Retirement System acquires a unit of service credit they are, in effect, handed an "IOU" which reads: "The General Retirement System promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The constitution of the State of Michigan is directed to the question:

> "Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."

This Retirement System meets the constitutional requirement by having the following ***Financial Objective: To establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level*** from year-to-year and which will not have to be increased for future generations of taxpayers.

Translated into actuarial terminology, a level percent-of-payroll contribution objective means that the contribution rate must be at least:

> ***Normal Cost*** (the current value of benefits likely to be paid on account of members' service being rendered in the current year)
>
> . . . plus . . .
>
> ***Interest on the Unfunded Actuarial Accrued Liability*** (the difference between the actuarial accrued liability and current system assets).

If contributions to the Retirement System are less than the preceding amount, the difference, ***plus investment earnings not realized thereon***, will have to be contributed at some later time or, benefits will have to be reduced, to satisfy the fundamental fiscal equation under which all retirement programs must operate; that is:

B = C + I - E

Benefit payments to any group of members and their beneficiaries cannot exceed the sum of:

Contributions received on behalf of the group from members and the City

. . . plus . . .

Investment earnings on plan assets

. . . minus . . .

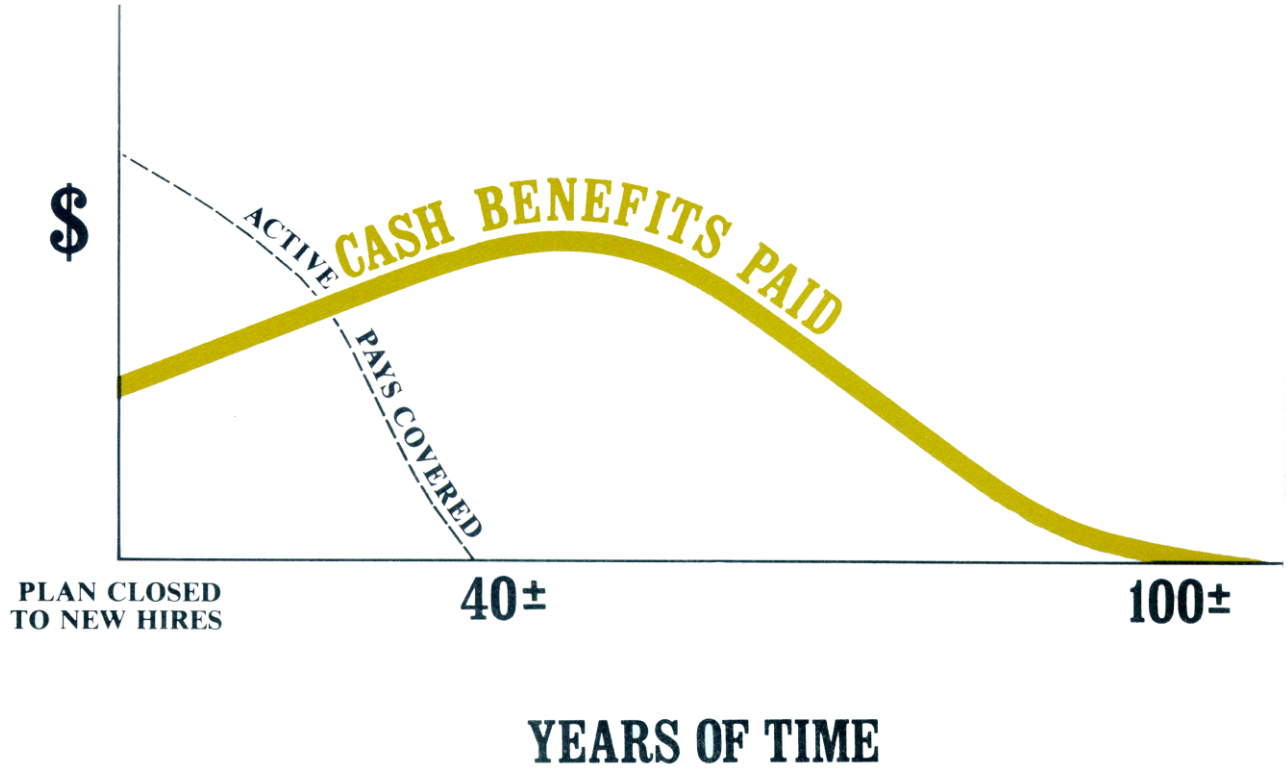
Expenses incurred in operating the program.

There are retirement programs designed to defer the bulk of contributions far into the future. Lured by artificially low present contributions, the inevitable consequence of a relentlessly increasing contribution rate -- to a level which may be greatly in excess of the level percent-of-payroll rate -- is ignored. ***This method of financing is prohibited in Michigan by the state constitution***.

A by-product of a level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. Invested assets are a by-product of level percent-of-payroll contributions, not the objective. Investment income becomes the third major contributor to the retirement program.

Computed Contribution Rate Needed to Finance Benefits. From a given schedule of benefits and from the data furnished him/her, the actuary calculates the contribution rate ***by means of an actuarial valuation*** - the technique of assigning monetary values to the risks assumed in operating a retirement program.

A CLOSED PENSION PLAN



A plan becomes closed when no new hires are admitted to active membership. The persons covered by the plan at the time of closing continue their normal activities and continue to be covered by the plan, until the last survivor dies.

Cash Benefits Line. After a pension plan becomes closed, the usual pattern is for cash benefits to continue to increase for decades of time. Eventually the cash benefits will peak, and then gradually decrease over more decades of time, ultimately to zero. The last cash benefit is likely to occur a century after the time the plan is closed.

The precise amount of cash benefits cannot be known now, and must be estimated by assumptions of future experience in a variety of financial risk areas.

Glossary

Actuarial Accrued Liability **-** The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service **-** The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions **-** Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method **-** A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent **-** A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value **-** The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization **-** Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss) **-** A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost **-** The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Plan Termination Liability **-** The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for the future service and salary. The termination liability will generally be less than the liabilities computed on a "going-concern" basis and is not normally determined in a routine actuarial valuation.

Glossary (Concluded)

Reserve Account **-** An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability **-** The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets **-** The value of current plan assets recognized for valuation purposes. Generally based on a phased-in recognition of all or a portion of market related investment return. Sometimes referred to as Actuarial Value of Assets.

SECTION E

HISTORICAL GASB STATEMENTS NO. 25 AND NO. 27 INFORMATION

GASB Statements No. 67 and No. 68 are the accounting standards which replaced Statements No. 25 and No. 27. GASB Statement No. 67 is first effective for fiscal year 2014 and GASB Statement No. 68 is first effective for fiscal year 2015. A separate GASB Statements No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statements No. 25 and No. 27 reporting information for prior fiscal years and illustrative information for fiscal year 2015 and beyond.

For Compliance with Historical GASB Statements
Required Actuarial Information
Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Entry Age Actuarial Accrued Liability (b)	Unfunded Accrued Liability (UAL) (b)-(a)	Funded Ratio (a)/(b)	Annual Covered Payroll (c)	UAL as a Percentage of Covered Payroll [(b-a)/(c)]
6/30/05 *	$305,533,088	$334,554,231	$ 29,021,143	91 %	$53,451,352	54 %
6/30/06 @	352,522,401	352,860,547	338,146	100 %	52,838,163	1 %
6/30/07*	391,693,895	368,873,096	(22,820,799)	106 %	52,426,527	-
6/30/08*	398,766,770	376,984,359	(21,782,411)	106 %	49,970,419	-
6/30/09	381,136,182	391,339,300	10,203,118	97 %	51,808,141	20 %
6/30/10*@	366,543,009	435,893,490	69,350,481	84 %	49,336,606	141 %
6/30/11*	360,280,315	445,762,361	85,482,046	81 %	49,040,518	174 %
6/30/12	349,486,629	448,864,237	99,377,608	78 %	46,167,958	215 %
6/30/13	353,299,470	455,914,323	102,614,853	78 %	43,783,450	234 %
6/30/14	385,153,710	460,585,801	75,432,091	84 %	40,510,955	186 %
6/30/15*@	401,743,923	500,205,954	98,462,031	80 %	38,492,586	256 %
6/30/16	404,096,873	510,324,266	106,227,393	79 %	35,760,078	297 %
6/30/17@	418,027,055	517,035,103	99,008,048	81 %	33,647,390	294 %
6/30/18@	426,989,004	526,954,073	99,965,069	81 %	30,949,968	323 %
6/30/19@	429,105,052	539,265,786	110,160,734	80 %	29,695,997	371 %
6/30/20@	426,996,313	557,599,165	130,602,852	77 %	28,873,053	452 %
6/30/21	445,684,135	563,551,840	117,867,705	79 %	27,657,053	426 %
6/30/22@	448,353,444	584,677,526	136,324,082	77 %	25,606,761	532 %
6/30/23	450,670,133	591,068,352	140,398,219	76 %	24,772,871	567 %
6/30/24	**460,552,945**	**594,474,512**	**133,921,567**	**78 %**	**23,139,053**	**579 %**

* *Retirement System amended.*
@ *Revised actuarial assumptions.*

For Compliance with Historical GASB Statements
Required Actuarial Information
Schedule of Employer Contributions

Year Ended June 30	Annual Required Contribution	Percent Contributed
1998	$ 5,958,012	100%
1999	4,601,277	100%
2000	3,180,232	100%
2001	815,441	100%
2002	485,854	100%
2003	1,600,534	100%
2004	5,916,496	100%
2005	8,632,941	100%
2006	8,596,017	100%
2007	8,733,871	100%
2008	6,008,558	100%
2009	3,833,164	100%
2010	4,708,020	100%
2011	6,162,363	100%
2012	8,949,239	100%
2013	8,135,843	100%
2014	8,771,032	100%
2015	11,327,704	100%
2016	9,295,104	100%
2017	10,237,538	100%
2018	10,673,034	100%
2019	12,920,265	100%
2020	11,325,243	100%
2021	11,284,613	100%
2022	12,568,944	100%
2023	11,918,613	100%
2024	**15,712,437**	**100%**

For Compliance with Historical GASB Statements
Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest valuation date follows:

Valuation Date	June 30, 2024
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level dollar, closed
Remaining Amortization Period	23.48 years (weighted average)
Asset Valuation Method	5-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return	6.75% for all groups
Projected Salary Increases	3.00% to 8.00%, plus up to 4.00% depending on service
Including Wage Inflation at	3.00%
Cost-of-Living Adjustments	Ad hoc "13th check" tied to plan investments for benefit recipients who do not have an automatic benefit increase. 1.0% simple escalator for those eligible.

Membership of the plan consisted of the following at June 30, 2024, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	1,204
Terminated plan members entitled to but not yet receiving benefits	95
Active plan members	281
Total	1,580