

City of Ann Arbor Employees'  
Retirement System  
Annual Actuarial Valuation  
as of June 30, 2023



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October 5, 2023

Retirement Board  
City of Ann Arbor Employees' Retirement System  
Ann Arbor, Michigan

**Re: City of Ann Arbor Employees' Retirement System Actuarial Valuation as of June 30, 2023  
Actuarial Disclosures**

Dear Board Members:

The results of the June 30, 2023 Annual Actuarial Valuation of the City of Ann Arbor Employees' Retirement System are presented in this report.

This report 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 System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the System's funding progress, and to determine the employer contribution rate for the fiscal year ending June 30, 2025. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution amount in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics in the appendix but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. This report also includes a discussion of the required Low-Default Risk Obligation Measure (LDRM) on page Appendix 4. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through June 30, 2023. The valuation was based upon information furnished by the City, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Plan Administrator.

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. All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice. Additional information about the actuarial assumptions is included in Section C of this report.

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 and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

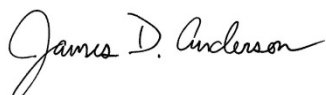
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the City of Ann Arbor Employees' Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

James D. Anderson, Richard C. Koch Jr., and Francois Pieterse are Members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Board of Trustees and to answer any questions pertaining to the valuation.

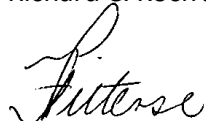
Respectfully submitted,  
Gabriel, Roeder, Smith & Company



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



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JDA/RCK/FP:dj

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## SECTION A

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### VALUATION RESULTS

## Summary of Key Actuarial Valuation Results

Valuation Date	June 30, 2023	June 30, 2022
<b>Summary of Member Data</b>		
Number of Members Included in Valuation		
Active Members	728	711
Inactive Members (Deferred and Retirees & Beneficiaries)	1,282	1,258
Total	2,010	1,969
Annual Payroll (Average)	\$ 82,158	\$ 80,561
Annual Benefit Payments (Average)		
Inactive Members	\$ 16,733	\$ 16,216
Retirees and Beneficiaries	\$ 37,976	\$ 37,135
<b>Summary of Assets</b>		
Market Value	\$605,610,308	\$571,174,716
Market Value Rate of Return	10.93%	-5.11%
Funding Value	\$589,551,011	\$570,654,330
Funding Value Rate of Return	8.16%	7.42%
<b>Summary of Liabilities</b>		
Total Actuarial Accrued Liability	\$670,451,757	\$652,441,776
Unfunded Actuarial Liability (UAL)	\$ 80,900,746	\$ 81,787,446
Funded Ratio	87.93%	87.46%
<b>Employer Actuarially Determined Contribution (ADC)</b>		
Total Normal Cost Rate	17.58%	18.03%
Employee Contribution Rate (weighted avg.)	5.05%	5.09%
Employer Normal Cost Rate	12.53%	12.94%
Amortization of UAL Rate	11.89%	12.20%
Total Employer ADC	24.42%	25.14%
Actual/Statutory Contribution Rate	30.41%	30.23%
Amortization Period (years)	18	19

## Funding Objective

The funding objective of the Retirement System is to establish and receive contributions that will accumulate assets during each member's working years which, together with regular interest, will be sufficient to pay promised benefits after retirement.

## Contribution Rates

The Retirement System is supported by member contributions, City contributions and investment income from Retirement System assets.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

- (1) Cover the actuarial present value of benefits allocated to the current year by the actuarial cost methods described in Section C (the normal cost); and
- (2) Finance over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (the unfunded actuarial accrued liability).

**Computed contribution rates** for the fiscal year ending June 30, 2025 are shown on page A-3.

## Contributions to Provide Benefits Computed June 30, 2023 for Fiscal Year Ending June 30, 2025

Contributions for	General	General Hybrid	Police	Police Hybrid	Fire	Fire Hybrid	Total <sup>(3)</sup>
Normal Cost of Benefits:							
1. Age & service	16.82 %	8.24 %	26.62 %	13.63 %	26.63 %	11.41 %	16.49 %
2. Disability	0.47 %	0.24 %	1.11 %	0.48 %	0.28 %	0.15 %	0.46 %
3. Death-in-service	0.32 %	0.12 %	0.28 %	0.06 %	0.35 %	0.00 %	0.24 %
4. Refunds of member contributions	0.52 %	0.41 %	0.23 %	0.18 %	0.17 %	0.22 %	0.39 %
5. Total normal cost	18.13 %	9.01 %	28.24 %	14.35 %	27.43 %	11.78 %	17.58 %
6. Member contributions (average)	6.00 %	3.00 %	6.50 %	3.00 %	6.50 %	3.00 %	5.05 %
7. Employer Normal Cost (5. - 6.)	12.13 %	6.01 %	21.74 %	11.35 %	20.93 %	8.78 %	12.53 %
8. Payment for Unfunded Actuarial Liabilities (UAL) <sup>(1)</sup>	\$ 3,903,981	\$ 66,724	\$ 2,210,637	\$ 1,349	\$ 1,433,014	\$ 1,159	\$ 7,616,864
9. Payment for UAL as a Percentage of Projected Payroll	17.63 %	0.29 %	21.08 %	0.84 %	18.26 %	0.83 %	11.89 %
<b>10. Projected Fiscal Year Payroll</b>	\$ 22,141,629	\$ 23,296,670	\$ 10,484,430	\$ 160,965	\$ 7,846,959	\$ 140,056	\$ 64,070,709
<b>11. Preliminary Actuarially Determined Contribution (ADC) (7. * 10. + 8.)</b>	\$ 6,589,761	\$ 1,466,854	\$ 4,489,952	\$ 19,619	\$ 3,075,383	\$ 13,456	\$ 15,655,025
<b>12. Preliminary ADC as a Percent of Projected Payroll</b>	29.76 %	6.30 %	42.82 %	12.19 %	39.19 %	9.61 %	24.42 %
<b>13. Prior Fiscal Year Budgeted Contribution<sup>(2)</sup></b>							\$ 15,931,540
<b>14. Prior Fiscal Year Budgeted Contribution with 2% Increase</b>							\$ 16,250,171
<b>15. Estimated City Contribution (Greater of 11. &amp; 14.)</b>							\$ 16,250,171

<sup>(1)</sup> Amortized as a level dollar amount over a closed period of 18 years.

<sup>(2)</sup> Provided by the City.

<sup>(3)</sup> Total Employer Normal Cost is a weighted average and applying this percentage to projected fiscal year payroll may not match the preliminary ADC due to rounding.

All percents in the table above are expressed as a percent of active member payroll.

### Determining Employer Dollar Contributions

For any period of time, the percent-of-payroll contribution rate needs to be converted to dollars – and then promptly contributed to the Retirement System.

The recommended procedure is: (1) **at the end of each payroll period, multiply the active member payroll for the period by the employer normal cost percent;** (2) **add the payment for unfunded actuarial liabilities divided by the number of payroll periods from (1);** and (3) **promptly contribute the dollar amount so determined.**





## Present Value of Future Benefits and Accrued Liabilities

	June 30, 2023							June 30, 2022
	General	General Hybrid	Police	Police Hybrid	Fire	Fire Hybrid	Total	Total
A. Accrued Liability								
1. For retirees and beneficiaries	\$ 244,481,559	\$ 0	\$ 157,763,055	\$ 0	\$ 94,625,888	\$ 0	\$ 496,870,502	\$ 475,003,282
2. For vested terminated members	9,534,458	0	3,031,431	0	\$ 780,496	0	13,346,385	12,137,429
3. For present active members								
a. Value of expected future benefit payments	119,631,425	23,568,619	65,249,205	248,547	52,557,740	168,011	261,423,547	259,192,414
b. Value of future normal costs	30,011,168	17,695,416	31,458,975	129,806	21,827,357	65,955	101,188,677	93,891,349
c. Active member accrued liability: (a) - (b)	89,620,257	5,873,203	33,790,230	118,741	30,730,383	102,056	160,234,870	165,301,065
4. Total accrued liability	343,636,274	5,873,203	194,584,716	118,741	126,136,767	102,056	670,451,757	652,441,776
B. Present Assets (Funding Value) <sup>(1)</sup>	302,171,052	5,164,507	171,104,953	104,413	110,916,345	89,741	589,551,011	570,654,330
C. Unfunded Accrued Liability: (A.4) - (B)	41,465,222	708,696	23,479,763	14,328	15,220,422	12,315	80,900,746	81,787,446
D. Funding Ratio: (B) / (A.4)	87.9%	87.9%	87.9%	87.9%	87.9%	87.9%	87.9%	87.5%

<sup>(1)</sup> Funding Value of Assets was allocated to each group based on total accrued liability.



## Development of the Funding Value of Retirement System Assets June 30, 2023

Valuation Date June 30:	2022	2023	2024	2025	2026	2027
A. Funding Value Beginning of Year (BOY)	\$554,096,977	\$570,654,330				
B. Market Value End of Year (EOY)	571,174,716	605,610,308				
C. Market Value BOY	626,250,148	571,174,716				
D. Audit Adjustment	78,468	464,347				
E. Non-Investment Net Cash Flow	(23,773,466)	(27,050,711)				
F. Investment Income						
1) Market Total: B-C-D-E	(31,380,434)	61,021,956				
2) Interest Rate	6.8%	6.7%	6.7%			
3) Amount for Immediate Recognition (F2 x (A + D + 0.5 x E))	36,875,632	37,358,753				
4) Amount for Phased-In Recognition F1 - F3	(68,256,066)	23,663,203				
G. Phased-In Recognition of Investment Income						
1) Current Year: 0.20 x F4	(13,651,213)	4,732,641				
2) First Prior Year	20,239,025	(13,651,213)	\$ 4,732,641			
3) Second Prior Year	(2,395,675)	20,239,025	(13,651,213)	\$ 4,732,641		
4) Third Prior Year	(800,488)	(2,395,675)	20,239,025	(13,651,213)	\$ 4,732,641	
5) Fourth Prior Year	(14,930)	(800,486)	(2,395,676)	20,239,026	(13,651,214)	\$4,732,639
6) Total Recognized Investment Gain	3,376,719	8,124,292	8,924,777	11,320,454	(8,918,573)	4,732,639
H. Funding Value EOY: A + D + E + F3 + G6	570,654,330	589,551,011				
I. Difference Between Market Value and Funding Value	520,386	16,059,297				
J. Net Funding Value Rate of Return	7.42%	8.16%				
K. Net Market Value Rate of Return	-5.11%	10.93%				
L. Funding Value / Market Value	99.9%	97.3%				

The Funding Value of Assets recognizes assumed investment income (line E2) fully each year. Differences between actual and assumed investment income (line E3) 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. The Funding Value of Assets is **unbiased** with respect to Market Value. At any time, it may be either greater or less than Market Value.



## Historical Asset Rate of Return

<b>Year Ending June 30</b>	<b>Actuarial Value Annual Recognized Rate of Return</b>	<b>Market Value Annual Recognized Rate of Return</b>
2014	11.18%	14.23%
2015	9.96%	4.22%
2016	6.22%	0.37%
2017	8.42%	11.96%
2018	6.96%	6.98%
2019	6.07%	6.21%
2020	6.02%	4.62%
2021	11.08%	27.19%
2022	7.42%	-5.11%
2023	8.16%	10.93%

## Derivation of Experience Gain (Loss) Year Ended June 30, 2023

Actual experience will never (except by coincidence) coincide exactly with assumed experience. Gains and losses often offset one another over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below:

	<u>2022-2023</u>	<u>2021-2022</u>
(1) UAAL* at start of year	\$ 81,787,446	\$ 73,047,113
(2) Normal cost from last valuation	10,403,760	10,138,694
(3) Actual contributions	17,933,854	19,478,054
(4) Interest	6.70%	6.80%
(5) Interest accrual: $(1) \times (4) + ((2) - (3)) \times (4) / 2$	\$ 5,227,501	\$ 4,649,665
(6) Expected UAAL before changes: $(1) + (2) - (3) + (5)$	79,484,853	68,357,418
(7) Change from revised actuarial assumptions	6,549,582	6,549,597
(7) Change from benefit changes	(77,888)	0
(8) Expected UAAL after changes: $(6) + (7)$	85,956,547	74,907,015
(9) Actual UAAL at end of year	80,900,746	81,787,446
(10) Gain (Loss): $(8) - (9)$	\$ 5,055,801	\$(6,880,431)
(11) Gain (Loss) as percent of actuarial accrued liabilities at start of year $\$(652,441,776)$	0.8%	(1.1%)
(12) Gain (Loss) due to Liabilities	\$ (3,068,491)	
(13) Gain (Loss) due to Assets	\$ 8,124,292	

\* *Unfunded Actuarial Accrued Liability.*



## Comments and Recommendation

**Actuarial Experience:** Aggregate experience during the year ending June 30, 2023 was more favorable than assumed, generating an overall experience gain of approximately \$5.1 million as indicated on page A-7. The actuarial gain was approximately 0.8% of the beginning of year actuarial accrued liabilities, arising primarily from higher than assumed recognized investment return with respect to the funding value of assets. Partially offsetting the investment gains were losses due to retirees living longer than expected and the minimum benefits increasing by more than assumed. After reflecting the experience described above and the update to the actuarial assumptions noted in the following comment, computed contribution requirements increased from the prior year from \$15.4 million to \$15.7 million. In addition, valuation assets represent 87.9% of accrued liabilities; last year the funded ratio was 87.5%. If the valuation results were based on market value of assets instead of smoothed funding value, the funded percent of the plan would be 90.3%.

**Plan Assumptions and Methods:** This valuation reflects updated actuarial assumptions based on the experience study dated May 11, 2023. Changes in pay increase rates, retirement rates, withdrawal rates, disability rates and mortality rates were reflected in this valuation. This resulted in a \$6.6 million increase in the actuarial accrued liability and a \$0.8 million increase in the actuarially determined contribution.

**Plan Provisions:** The following plan provision changes were reported to the actuary in connection with this valuation:

- Fire members hired prior to 7/1/2012 contribution rate changed from 6.0% to 6.5% of annual compensation.
- Police members contribution rate changed from 6.0% to 6.5% of annual compensation.
- Police members benefits shall not exceed 80% of FAC.

**Investment Experience:** The investment return of 10.9% was higher than the assumed level of 6.7% on a market value basis. However, under the asset valuation method, investment gains and losses are spread over a five-year period. Partial recognition of this year's gain was combined with the continued phase-in of investment gains and losses from prior years resulting in a net recognized asset gain for 2023. The Market Value of Assets now exceeds the Funding Value by approximately \$16,059,000 (see page A-5), which is the net amount of unrecognized prior year gains and losses to be recognized over the coming four years.

**Reserve Transfers:** Reserve transfers between the active and retired life accounts are required whenever retired life liabilities differ from the Reserve for Retired Benefit Payments. If a reserve is maintained for the City of Ann Arbor, the Reserve for Retired Benefit Payments should be equal to \$496,870,502 (the actuarial accrued liability for retired lives).

**Michigan Public Act 202:** Under Public Act 202 of the State of Michigan, Michigan municipalities are required to report liabilities under uniform assumption guidelines. While the current guidelines are only for reporting purposes (and not funding), governments may be encouraged to use these assumptions for funding.

The uniform assumptions include the following:

- Investment return no higher than 6.85%;
- Assumed wage inflation no lower than 3.25%\*;
- Mortality assumption that uses a version of the PUB-2010 table with generational mortality improvements using scale MP-2021\*;
- Amortization period no longer than 16 years for Pension Plans and 26 years for Retiree Health Plans.

*\* Or based on an actuarial experience study performed in the last five years.*

The information needed to satisfy PA 202 reporting requirements is provided in the appendix of this report.

PA 202 also requires an actuarial audit be performed every eight years. GRS will work with the Board and Staff to ensure compliance.

**ASOP 51:** Please see the appendix to this valuation for presentation of information related to Actuarial Standard of Practice ("ASOP") No. 51 entitled "Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions."

**ASOP 4:** 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" (LDRM). Please see page Appendix-4 in this report for more detail regarding the LDRM calculation.

# Actuarial Accrued Liabilities and Valuation Assets Comparative Statement

Valuation Date	Actuarial Accrued Liability (AAL)	Funding Value of Assets	Unfunded Actuarial Accrued Liability (UAAL)	Ratio of Present Assets to AAL	Ratio of UAAL to Valuation Payroll
2014	\$ 523,461,000	\$ 433,854,000	\$ 89,607,000	82.9 %	186.8 %
2015	533,198,000	459,480,000	73,718,000	86.2 %	151.2 %
2016	548,201,000	470,029,000	78,172,000	85.7 %	156.2 %
2017	571,074,000	489,943,000	81,131,000	85.8 %	151.4 %
2018 <sup>(1),(2)</sup>	583,601,000	505,015,000	78,586,000	86.5 %	147.6 %
2019	601,108,981	513,611,366	87,497,615	85.4 %	158.3 %
2020 <sup>(3)</sup>	614,077,223	520,439,737	93,637,486	84.8 %	166.6 %
2021 <sup>(3)</sup>	627,144,090	554,096,977	73,047,113	88.4 %	132.7 %
2022 <sup>(3)</sup>	652,441,776	570,654,330	81,787,446	87.5 %	142.8 %
2023 <sup>(1),(4)</sup>	670,451,757	589,551,011	80,900,746	87.9 %	135.3 %

<sup>(1)</sup> Actuarial assumptions revised.

<sup>(2)</sup> Valuation results for 2018 and prior years were calculated by the City's prior actuary.

<sup>(3)</sup> Reflects a change in the investment return assumption.

<sup>(4)</sup> Change in benefit provisions.

**The Ratio of Valuation Assets to 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 ratio can be expected to move gradually toward 100%.

**The Ratio of UAAL to Valuation Payroll** is another relative index of condition. Actuarial unfunded liabilities represent debt, while active member payroll represents the system's capacity to collect contributions to pay toward debt. The lower the ratio, the greater the financial strength – and vice-versa.

## Solvency Test

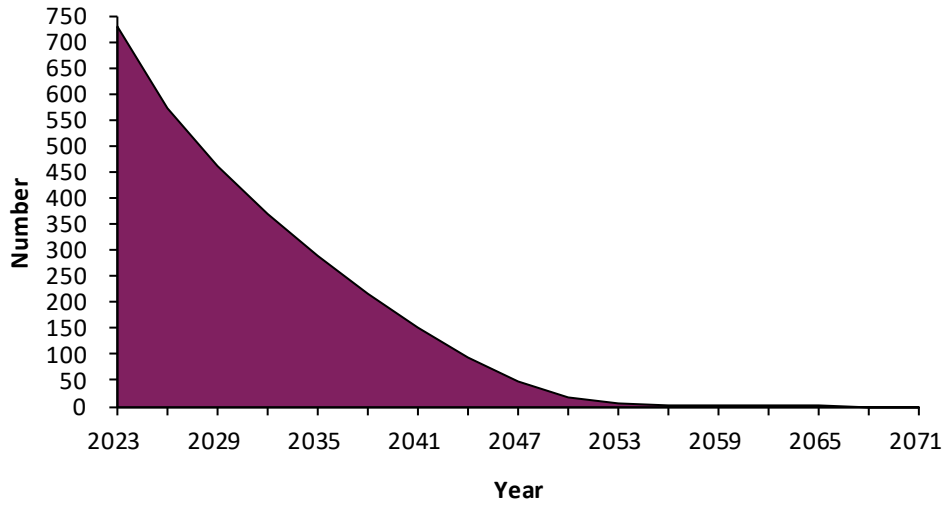
Valuation Date	Actuarial Liabilities (in thousands)			Valuation Assets (in thousands)	Portion of Accrued Liabilities Covered by Assets		
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)		(1)	(2)	(3)
2014	\$ 2,948	\$ 356,397	\$ 164,116	\$ 433,854	100.00%	100.00%	45.40%
2015	3,013	361,314	168,871	459,480	100.00%	100.00%	56.35%
2016	3,139	374,798	170,264	470,029	100.00%	100.00%	54.09%
2017	3,325	389,354	178,395	489,943	100.00%	100.00%	54.52%
2018 <sup>(1)</sup>	3,185	413,119	170,478	505,015	100.00%	100.00%	52.04%
2019	3,085	423,401	174,623	513,611	100.00%	100.00%	49.89%
2020	3,103	433,954	177,020	520,440	100.00%	100.00%	47.10%
2021	2,989	453,466	170,689	554,097	100.00%	100.00%	57.20%
2022	3,013	487,141	162,288	570,654	100.00%	100.00%	49.60%
2023	3,108	510,217	157,127	589,551	100.00%	100.00%	48.51%

<sup>(1)</sup> Valuation results for 2018 and prior years were calculated by the City's prior actuary.

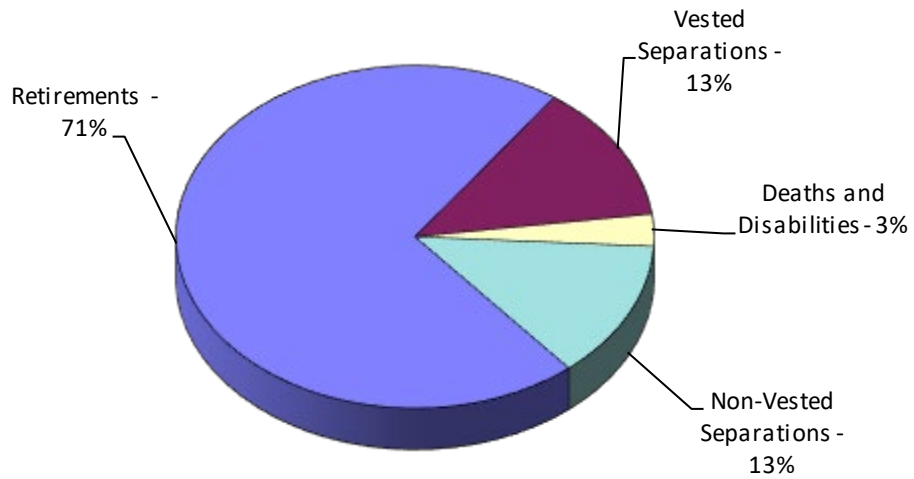


# Expected Development of Present Population

## Closed Group Active Population Projection

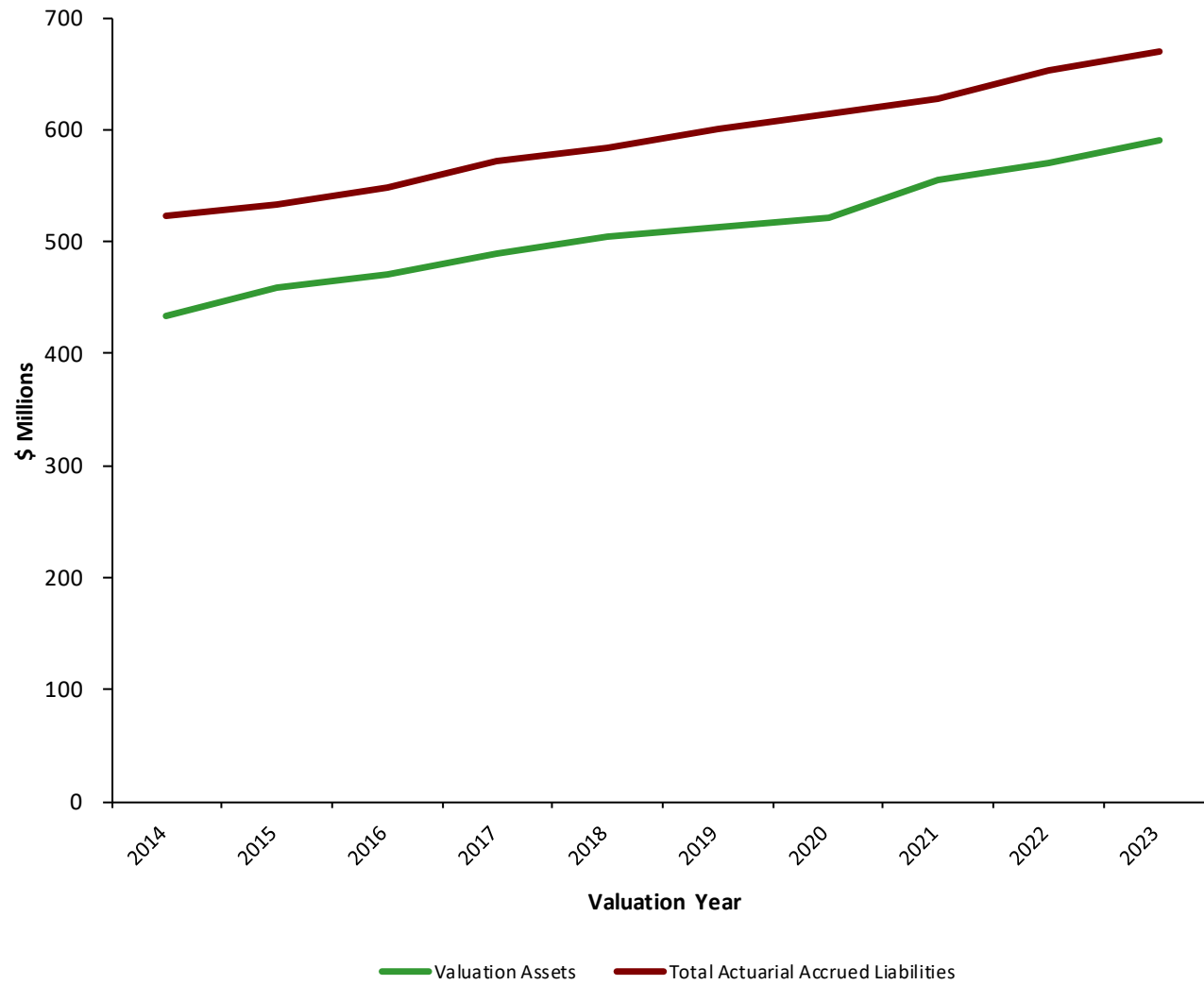


## Expected Terminations from Active Employment for Current Active Members





## Assets and Accrued Liabilities



## **SECTION B**

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### **SUMMARY OF VALUATION DATA**

## Retirees and Beneficiaries Added to and Removed from Rolls Comparative Schedule

Year Ended June 30	No. Added to Rolls	No. Removed from Rolls	Rolls End of Year	
			No.	Annual Allowances
2014	34	25	980	\$ 31,734,475
2015	36	20	996	32,249,188
2016	45	24	1,017	33,495,093
2017	53	30	1,040	34,825,341
2018	63	33	1,067	36,707,905
2019	49	35	1,081	37,768,548
2020	42	21	1,102	39,054,103
2021	48	29	1,121	40,414,900
2022	63	28	1,156	42,927,498
2023	46	25	1,177	44,697,810

## Retirees and Beneficiaries as of June 30, 2023 Tabulated by Attained Ages

Attained Ages	Age and Service		Disability		Total	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
Under 50	16	\$ 888,412			16	\$ 888,412
50-54	68	3,762,341	2	\$ 81,823	70	3,844,164
55-59	112	6,188,972	1	6,655	113	6,195,627
60-64	191	7,771,342	4	90,299	195	7,861,641
65-69	216	8,095,648			216	8,095,648
70-74	206	7,576,601	1	37,905	207	7,614,506
75-79	173	5,336,718	2	29,928	175	5,366,646
80-84	90	2,566,227			90	2,566,227
85-89	51	1,321,186			51	1,321,186
90 & Over	44	943,753			44	943,753
<b>Totals</b>	<b>1,167</b>	<b>\$ 44,451,200</b>	<b>10</b>	<b>\$ 246,610</b>	<b>1,177</b>	<b>\$ 44,697,810</b>

## Inactive Members Eligible for Deferred Benefits as of June 30, 2023 Tabulated by Attained Ages

Attained Ages	No.	Annual Allowances
35	1	\$ 20,086
39	1	20,331
40	1	20,375
41	1	3,388
42	3	30,382
43	4	54,282
44	3	54,329
45	3	105,191
46	4	115,816
47	6	82,758
48	5	69,498
49	2	29,341
50	2	7,057
51	8	123,078
52	8	122,157
53	8	146,418
54	6	155,320
55	9	175,086
56	5	66,444
57	2	22,579
58	11	212,447
59	2	32,158
60	1	3,369
61	1	8,591
62	1	14,487
63	1	9,265
64	1	4,072
65	1	5,708
66	1	4,286
67	1	17,483
68	1	14,842
69	1	6,327
<b>Totals</b>	<b>105</b>	<b>\$1,756,951</b>



## Retirees and Beneficiaries as of June 30, 2023 Tabulated by Valuation Divisions

Valuation Divisions	No.	Annual Allowances
General	746	\$22,532,004
Police	252	13,424,030
Fire	179	8,741,776
Total	1,177	\$44,697,810

## Inactive Members Eligible for Deferred Benefits as of June 30, 2023 Tabulated by Valuation Divisions

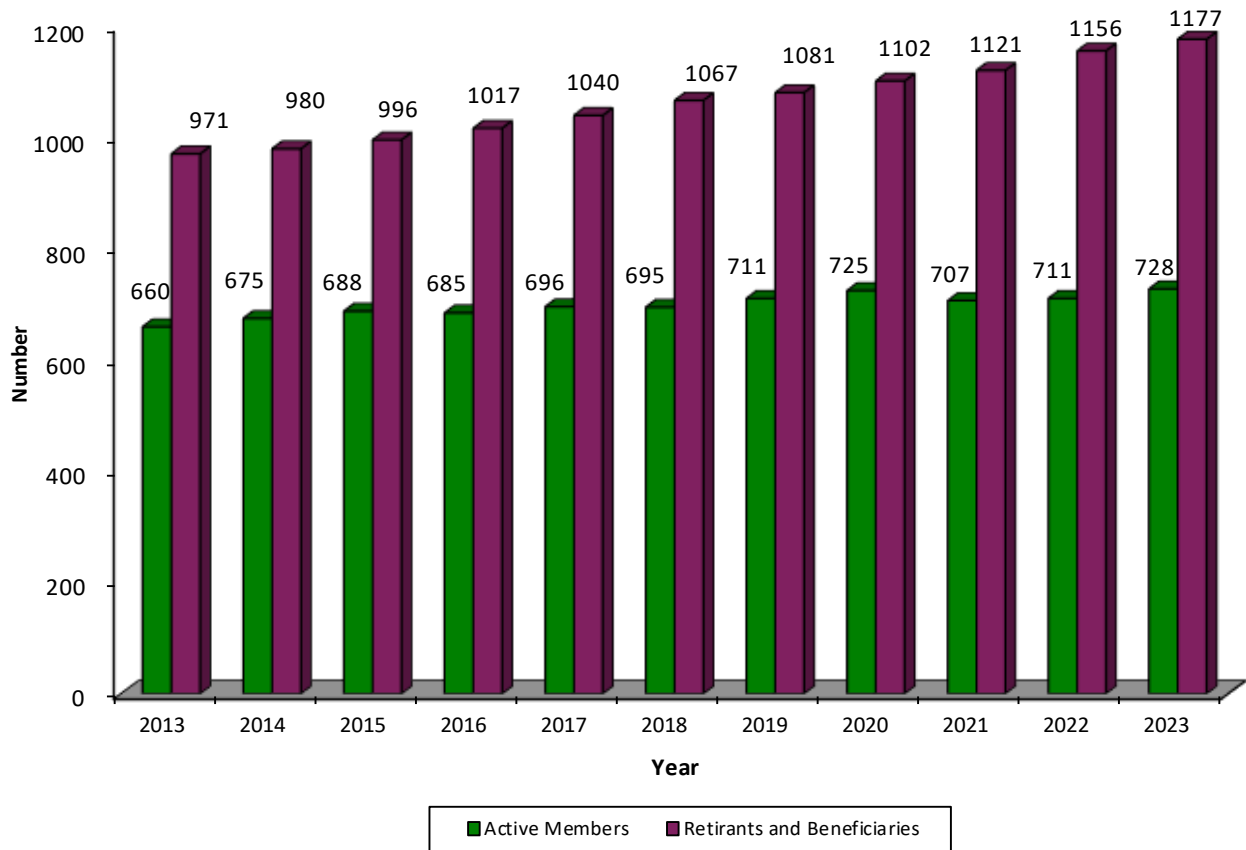
Valuation Divisions	No.	Estimated Annual Allowances
General	87	\$1,253,636
Police	16	404,134
Fire	2	99,181
Total	105	\$1,756,951

## Active Members as of June 30, 2023 Tabulated by Valuation Divisions

Valuation Divisions	No.	Annual Payroll
General	274	\$ 23,814,868
General Hybrid	282	18,602,271
Police	90	9,787,328
Police Hybrid	1	150,263
Fire	80	7,325,220
Fire Hybrid	1	130,744
<b>Total Active Members</b>	<b>728</b>	<b>\$ 59,810,694</b>

The average accumulated contributions balance for active members is \$60,275.

### Active and Retired Members



## General Members as of June 30, 2023 by Age and Years of Service

Age	Years of Service to Valuation Date							No.	Totals
	0-4	5-9	10-14	15-19	20-24	25-30	30 Plus		Valuation Payroll
15-19	1							1	\$ 47,848
20-24	8							8	265,678
25-29	43	6						49	2,878,034
30-34	36	15	2					53	3,470,780
35-39	35	25	5	1				66	4,779,580
40-44	30	24	9	8	1			72	5,514,707
45-49	19	31	19	18	12	1		100	8,139,821
50-54	20	20	9	19	10	4		82	7,104,062
55-59	17	7	9	13	11	6	2	65	5,362,203
60	3	2	3	2	3			13	1,124,621
61	4	3		1	1	1	2	12	975,755
62	2	1	1		1		1	6	440,252
63	2	3	1	1	1	1		9	702,252
64	1		1		1			3	320,571
65		3	1		1			5	391,326
66				2	1			3	252,471
67	2	1	2	1				6	491,152
68	1							1	41,659
69	1							1	75,980
71	1							1	38,387
<b>Totals</b>	<b>226</b>	<b>141</b>	<b>62</b>	<b>66</b>	<b>43</b>	<b>13</b>	<b>5</b>	<b>556</b>	<b>\$ 42,417,139</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Non-Hybrid</u>	<u>Hybrid</u>	<u>Total</u>
Count:	274	282	556
Age:	49.51	40.81	45.10
Service:	14.72	2.73	8.64
Annual Pay:	\$86,916	\$65,965	\$76,290





## Police Members as of June 30, 2023 by Age and Years of Service

Age	Years of Service to Valuation Date							No.	Totals
	0-4	5-9	10-14	15-19	20-24	25-30	30 Plus		Valuation Payroll
20-24	5							5	\$ 308,883
25-29	10	1						11	907,705
30-34	4	10	2					16	1,581,806
35-39	4	11	6					21	2,385,613
40-44	4	6	3	1				14	1,599,034
45-49	2	2	1	1	9	2		17	2,134,816
50-54					3	1		4	518,589
55-59		1		1	1			3	501,145
<b>Totals</b>	<b>29</b>	<b>31</b>	<b>12</b>	<b>3</b>	<b>13</b>	<b>3</b>		<b>91</b>	<b>\$ 9,937,591</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Non-Hybrid</u>	<u>Hybrid</u>	<u>Total</u>
Count:	90	1	91
Age:	38.21	49.12	38.33
Service:	9.67	5.46	9.62
Annual Pay:	\$108,748	\$150,263	\$109,204

## Fire Members as of June 30, 2023 by Age and Years of Service

Age	Years of Service to Valuation Date							No.	Totals
	0-4	5-9	10-14	15-19	20-24	25-30	30 Plus		Valuation Payroll
20-24	4							4	\$ 213,404
25-29	9							9	595,191
30-34	10	8						18	1,351,982
35-39	5	4	3					12	991,666
40-44		2	1	1	1			5	488,169
45-49			1	3	6	2		12	1,420,185
50-54			2	6	4	6		18	2,009,185
55-59		1				1		2	276,433
62					1			1	109,749
<b>Totals</b>	<b>28</b>	<b>15</b>	<b>7</b>	<b>10</b>	<b>12</b>	<b>9</b>		<b>81</b>	<b>\$ 7,455,964</b>

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

	<u>Non-Hybrid</u>	<u>Hybrid</u>	<u>Total</u>
Count:	80	1	81
Age:	39.85	57.88	40.07
Service:	11.34	5.54	11.27
Annual Pay:	\$91,565	\$130,744	\$92,049

# Active Members Added to and Removed from Rolls

General Members												
Year	No. Added During Year <sup>(2)</sup>	Terminations During the Year										Active Members End of Year
		Normal Retirement		Disabled		Died-in-Service		Withdrawals				
		A	E	A	E	A	E	Vested	Other <sup>(3)</sup>	Total		
2019	56	16	19	0	1	0	1	0	26	26	21	513
2020	51	17	19	1	1	1	0	1	22	23	22	522
2021	49	16	20	0	1	0	0	3	34	37	22	518
2022	86	23	21	0	1	0	1	5	44	49	21	532
2023 <sup>(1)</sup>	81	21	18	0	1	0	0	4	32	36	29	556
<b>5-Year Total</b>		<b>93</b>	<b>97</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>13</b>	<b>158</b>	<b>171</b>	<b>115</b>	

Police Members												
Year	No. Added During Year <sup>(2)</sup>	Terminations During the Year										Active Members End of Year
		Normal Retirement		Disabled		Died-in-Service		Withdrawals				
		A	E	A	E	A	E	Vested	Other <sup>(3)</sup>	Total		
2019	11	8	8	0	0	1	0	1	1	2	3	118
2020	10	3	6	0	0	0	0	0	3	3	2	122
2021	3	9	10	0	0	0	0	1	1	2	2	114
2022	8	17	13	0	0	0	0	0	4	4	2	101
2023 <sup>(1)</sup>	8	13	8	0	0	0	0	1	4	5	2	91
<b>5-Year Total</b>		<b>50</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>13</b>	<b>16</b>	<b>11</b>	

Fire Members												
Year	No. Added During Year <sup>(2)</sup>	Terminations During the Year										Active Members End of Year
		Normal Retirement		Disabled		Died-in-Service		Withdrawals				
		A	E	A	E	A	E	Vested	Other <sup>(3)</sup>	Total		
2019	5	3	4	0	0	0	0	0	0	0	1	80
2020	6	4	3	0	0	0	0	0	1	1	1	81
2021	3	7	5	0	0	1	0	1	0	1	1	75
2022	10	4	5	1	0	0	0	1	1	2	1	78
2023 <sup>(1)</sup>	8	3	4	1	0	0	0	0	1	1	1	81
<b>5-Year Total</b>		<b>21</b>	<b>21</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>5</b>	

A = Actual  
E = Expected

<sup>(1)</sup> Revised actuarial assumptions.

<sup>(2)</sup> Includes individuals transferring into a group.

<sup>(3)</sup> Includes individuals transferring out of a group.



# Summary of Current Asset Information

## Balance Sheet

### Valuation Assets

Cash, receivables, accruals and other short-term	\$ 22,216,808
Equity securities	388,012,110
Debit securities	83,884,775
Real Estate	72,391,525
Infrastructure	41,131,420
Other	1,897,481
Accounts payable	(3,923,811)
Funding value adjustment	<u>(16,059,297)</u>
<b>Total Current Assets</b>	<b>\$589,551,011</b>

### Revenues and Expenditures

	<u>2022-2023</u>	<u>2021-2022</u>
Balance - July 1	\$571,174,716	\$626,250,148
Audit Adjustment	464,347	78,468
Revenues		
Member contributions	3,295,342	3,222,809
Employer contributions	14,638,512	16,255,245
Recognized investment income	61,021,956	<u>(31,380,434)</u>
<b>Total</b>	<b>78,955,810</b>	<b>(11,902,380)</b>
Expenditures		
Benefit payments	43,842,867	41,681,450
Refund of member contributions	358,601	867,852
Administrative expenses	783,097	<u>702,218</u>
<b>Total</b>	<b>44,984,565</b>	<b>43,251,520</b>
Balance - June 30	\$605,610,308	\$571,174,716
Net investment income/mean assets	10.9%	-5.1%

## SECTION C

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### **SUMMARY OF VALUATION METHODS, ASSUMPTIONS, AND BENEFIT PROVISIONS**

## 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 program acquires a unit of service credit they are, in effect, handed an “IOU” which reads: “Your 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 this 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 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 program 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

. . . plus . . .

Investment earnings on contributions received and not required for immediate payment of benefits

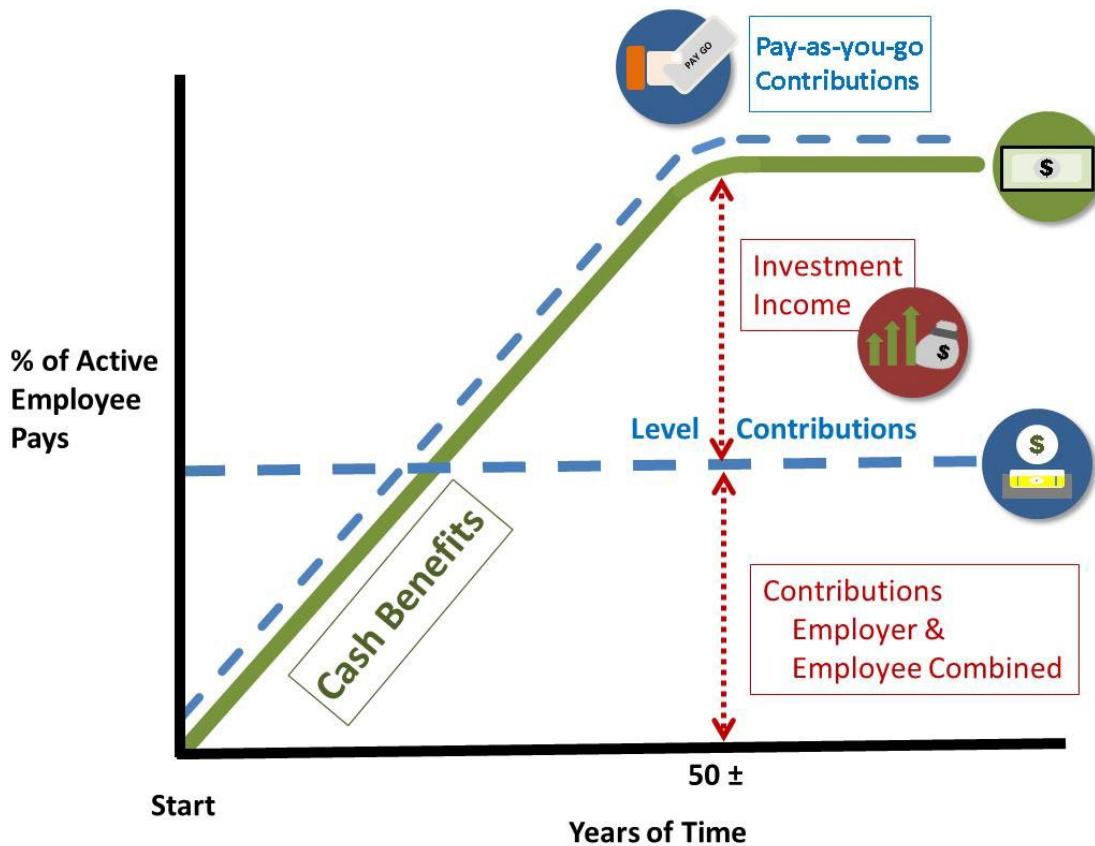
. . . minus . . .

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 is a relentlessly increasing contribution rate to a level greatly in excess of the level percent-of-payroll rate. ***This method of financing is prohibited in Michigan by the state constitution.***

A by-product of the 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 major contributor*** to the retirement program, and the amount is directly related to the amount of contributions and investment performance.

***Computed Contribution Rate Needed to Finance Benefits.*** From a given schedule of benefits and from the data furnished him, 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.



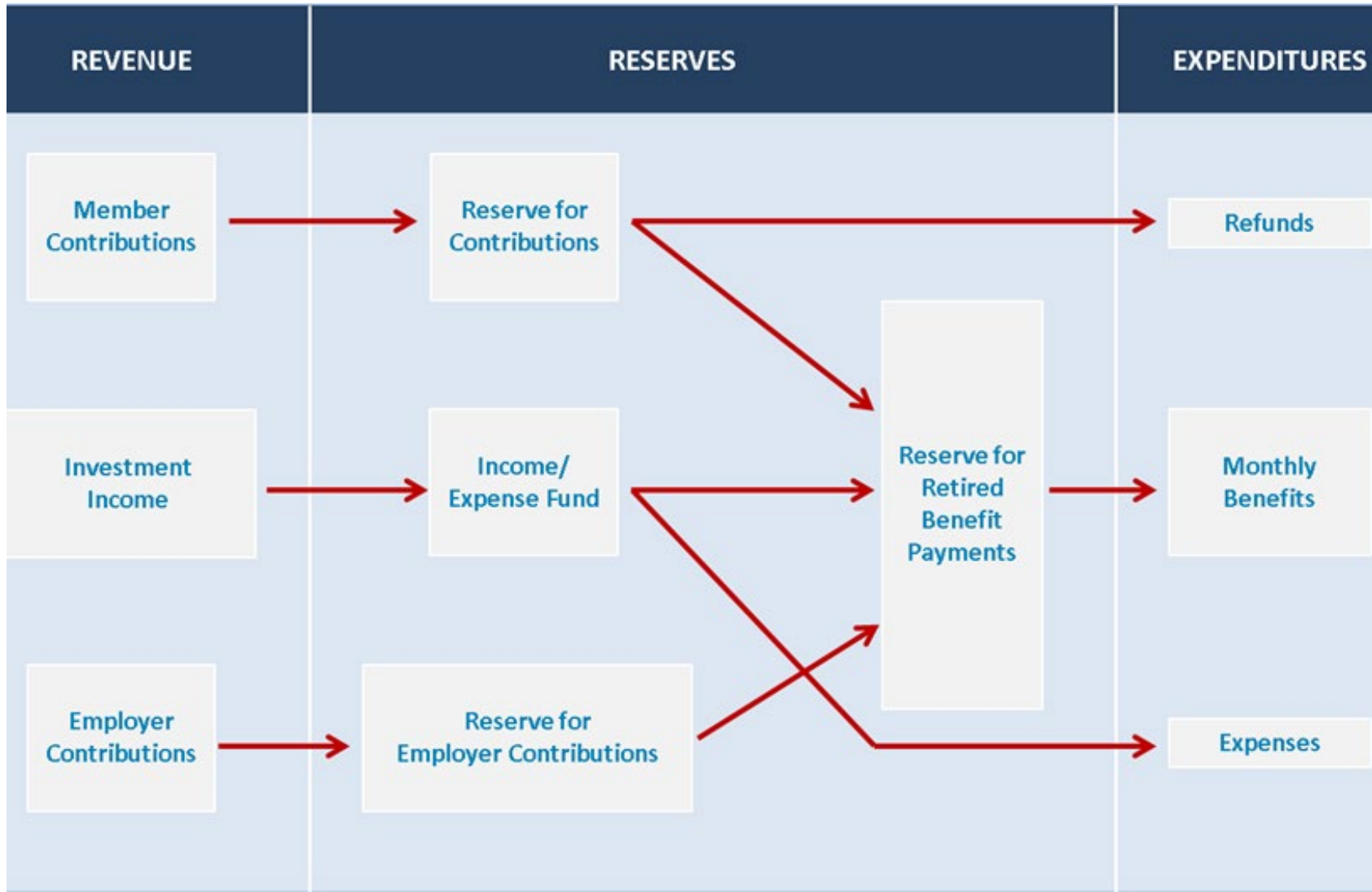
**CASH BENEFITS LINE.** This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

**LEVEL CONTRIBUTION LINE.** Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- **Economic Risk Areas**
  - Rates of investment return
  - Rates of pay increase
  - Changes in active member group size
- **Non-Economic Risk Areas**
  - Ages at actual retirement
  - Rates of mortality
  - Rates of withdrawal of active members (turnover)
  - Rates of disability



## Flow of Money Through the Retirement System



## Actuarial Cost Methods

**Normal Cost.** 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 cost for each individual active member, payable from the date of employment to the date of retirement, is 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 (full funding credit if assets exceed liabilities) are amortized by level dollar contributions.

The City of Ann Arbor Employees' Retirement System is funded by Employer and Member Contributions in accordance with the funding policy adopted by the Retirement Board, based on actuarially determined contributions (ADC), which require contributions be sufficient to pay the Normal Costs of active plan members, Plan expenses, and amortize the Unfunded Actuarial Accrued Liability over a declining period. Effective with the 2017 valuation, the Board approved a change to a level dollar amortization that decreases by one year in each year until a 15-year open amortization period is obtained. As a result of the Experience study performed in 2023, the Board approved continuing the current amortization policy until the amortization period reaches 15 years, at which point layered amortization would be incorporated. Under this approach, the initial Unfunded Actuarial Accrued Liability (UAAL) would wind down until fully amortized. Any new UAAL created by gains/losses, assumption changes and/or plan changes will be amortized over a new, closed 15-year period.

Additionally, Section 1.3 of the City of Ann Arbor General Pension Policy allows for more than the Minimum Required policy as follows:

"The City of Ann Arbor will strive to achieve 100% funding of the City of Ann Arbor Employees' Retirement Plan. To the extent that 100% funding has been achieved, the City will continue to fund at a minimum the Normal Cost as defined by an outside actuary. To the extent that 100% funding had not been achieved, the City shall budget each fiscal year the higher of the ADC or the existing level of funding in the current budget year adjusted annually for the change in general fund budgeted revenues. In some years this may result in an excess contribution to the Pension Fund, which will serve to pay down the unfunded actuarial accrued liability and reduce future city cost increases."

## Actuarial Assumptions

The actuary calculates the contribution requirements and benefit values by applying actuarial assumptions to the benefit provisions and census data furnished, using the actuarial cost methods described on the previous page.

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

- Long-term rates of investment return to be generated by system assets;
- Patterns of pay increases to members;
- Rates of mortality among members, retirees and beneficiaries;
- Rates of separation (withdrawal) from active membership;
- Rates of disability among active members; and
- The age patterns of actual retirement.

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

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Actual experience of the Fund will not coincide exactly with assumed experience, regardless of the quality 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 takes into account 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 is appropriate to modify one or more of the assumptions to reflect experience trends (but not random year-to-year fluctuations). Actuarial assumptions were last revised for the June 30, 2023 valuation, based on an experience study dated May 11, 2023.

**Investment Return** (net of investment expenses):

Investment Return	6.70%
Wage Inflation	3.50%
Price Inflation	2.50%
Spread Between Investment Return and Wage Inflation	3.20%

The investment return assumption is used to equate the value of payments due at different points in time and was first used for the June 30, 2022 valuation.

**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 benefits will be based.

Sample Ages	% Increase in Salary at Sample Ages						
	Merit and Seniority			Base (Economic)	Increase Next Year		
	General	Police	Fire		General	Police	Fire
20	4.10%	7.61%	7.33%	3.50%	7.60%	11.11%	10.83%
25	3.67%	6.70%	6.55%	3.50%	7.17%	10.20%	10.05%
30	2.89%	4.81%	4.88%	3.50%	6.39%	8.31%	8.38%
35	2.19%	3.41%	3.46%	3.50%	5.69%	6.91%	6.96%
40	1.89%	2.74%	2.71%	3.50%	5.39%	6.24%	6.21%
45	1.51%	2.42%	2.39%	3.50%	5.01%	5.92%	5.89%
50	1.00%	2.21%	2.19%	3.50%	4.50%	5.71%	5.69%
55	0.70%	2.07%	2.05%	3.50%	4.20%	5.57%	5.55%
60	0.51%	1.83%	1.91%	3.50%	4.01%	5.33%	5.41%

**Rates of separation from active membership** were as shown below (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.

Sample Ages	Years of Service	% of Active Members Separating within Next Year			
		General		Police	Fire
		Males	Females		
	1	13.00%	16.00%	6.00%	4.50%
	2	11.00%	13.00%	6.00%	4.00%
	3	7.00%	11.00%	4.00%	3.60%
	4	6.00%	8.00%	3.00%	3.60%
	5	5.00%	6.00%	2.50%	3.60%
25	6 & Over	3.20%	4.50%	2.40%	1.40%
30		3.20%	4.50%	2.40%	1.10%
35		3.25%	3.50%	1.75%	0.90%
40		3.25%	3.50%	0.74%	1.00%
45		3.25%	3.50%	0.48%	0.90%
50		3.25%	3.50%	0.48%	0.50%
55		3.25%	3.50%	0.48%	0.50%
60		3.25%	3.50%	0.48%	0.50%
65		3.25%	3.50%	0.48%	0.50%

The mortality tables used are as follows:

**General**

- **Healthy Pre-Retirement:** Pub-2010 General Employee Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.
- **Healthy Post-Retirement:** Pub-2010 General Healthy Retiree Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.
- **Disability Retirement:** Pub-2010 Non-Safety Disabled Retiree Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.

**General**

Sample Attained Ages	Healthy Pre-Retirement		Healthy Post-Retirement		Disabled Retirement	
	Future Life		Future Life		Future Life	
	Expectancy (Years) <sup>(1)</sup>		Expectancy (Years) <sup>(1)</sup>		Expectancy (Years) <sup>(1)</sup>	
	Men	Women	Men	Women	Men	Women
55	34.13	36.20	30.63	33.48	22.79	25.64
60	29.23	31.17	25.91	28.61	19.62	22.31
65	24.47	26.24	21.42	23.88	16.69	19.04
70	19.82	21.41	17.16	19.34	13.88	15.67
75	15.28	16.69	13.23	15.09	11.12	12.37
80	10.86	12.14	9.75	11.27	8.53	9.43

<sup>(1)</sup> Based on attained ages in 2023. Future years will reflect improvements in life expectancy.

**Police and Fire**

- **Healthy Pre-Retirement:** Pub-2010 Safety Employee Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.
- **Healthy Post-Retirement:** Pub-2010 Safety Healthy Retiree Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.
- **Disability Retirement:** Pub-2010 Safety Disabled Retiree Mortality Tables, amount-weighted, and projected with mortality improvements using the fully generational MP-2021 projection scale from a base year of 2010.

**Police and Fire**

Sample Attained Ages	Healthy Pre-Retirement		Healthy Post-Retirement		Disabled Retirement	
	Future Life		Future Life		Future Life	
	Expectancy (Years) <sup>(1)</sup>		Expectancy (Years) <sup>(1)</sup>		Expectancy (Years) <sup>(1)</sup>	
	Men	Women	Men	Women	Men	Women
55	33.43	35.86	30.51	32.50	29.31	31.45
60	28.44	30.82	25.62	27.58	24.62	26.82
65	23.57	25.83	21.02	22.93	20.26	22.47
70	18.86	20.91	16.73	18.54	16.22	18.34
75	14.38	16.17	12.82	14.46	12.50	14.43
80	10.20	11.72	9.40	10.85	9.27	10.85

<sup>(1)</sup> Based on attained ages in 2023. Future years will reflect improvements in life expectancy.

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

Retirement Ages	General		Police		Fire		Retirement		
	Normal	Early	Normal	Early	Normal	Early	Service	Police	Fire
50	25%	10%		10%		10%	25	50%	25%
51	25%	10%		10%		10%	26	50%	25%
52	25%	10%		10%		10%	27	50%	25%
53	25%	10%		10%		10%	28	50%	25%
54	25%	10%		10%		10%	29	50%	25%
55	25%	10%	50%		25%		30	50%	25%
56	25%	10%	50%		25%		31	50%	25%
57	25%	10%	50%		25%		32	50%	25%
58	25%	10%	50%		25%		33	50%	25%
59	25%	10%	50%		25%		34	50%	25%
60	25%		100%		100%		35	100%	100%
61	25%								
62	25%								
63	25%								
64	25%								
65	60%								
66	40%								
67	40%								
68	40%								
69	40%								
70	100%								

**Rates of disability** among active members.

Sample Ages	% Becoming Disabled within Next Year		
	General	Police	Fire
20	0.04%	0.08%	0.02%
25	0.04%	0.08%	0.02%
30	0.04%	0.08%	0.02%
35	0.04%	0.08%	0.02%
40	0.07%	0.14%	0.03%
45	0.16%	0.32%	0.08%
50	0.28%	0.56%	0.14%
55	0.43%	0.86%	0.22%
60	0.57%	1.14%	0.29%
65	0.66%	1.32%	0.33%

For General members, 75% of the disabilities are assumed to be non-duty and 25% of the disabilities are assumed to be duty related. For Police/Fire members, 50% of the disabilities are assumed to be non-duty and 50% of the disabilities are assumed to be duty related.



# City of Ann Arbor Employees' Retirement System

## Brief Summary of Benefit Provisions Evaluated

### June 30, 2023

#### Regular Retirement (no reduction factor for age):

Union	5 Year Vesting 3 Year / 36 Mo FAC <sup>(1)</sup>	10 Year Vesting 5 Year / 60 Mo FAC <sup>(2)</sup>	Eligibility	Annual Amount
Non-Union	Hired before July 1, 2011	Hired on/after July 1, 2011	Age 50 with 25 years of service or Age 60 and vested	Hired before 1/1/2017: 2.5% of FAC times total years of service Hired after 1/1/2017: 1.25% of FAC times total years of service
American Federation of State, County, and Municipal Employees, AFL CIO (AFSCME)	Hired before August 29, 2011	Hired on/after August 29, 2011	Age 50 with 25 years of service or Age 60 and vested	Hired before 1/1/2017: 2.5% of FAC times total years of service Hired after 1/1/2017: 1.25% of FAC times total years of service
Ann Arbor Police Officers Association (AAPOA) <sup>(3)</sup>	Hired before January 1, 2012	Hired on/after January 1, 2012	25 years of service or Age 55 and vested	2.75% of FAC times total years of service Maximum benefit shall not exceed 80% of FAC
International Association of Fire Fighters (IAFF)	Hired before July 1, 2012	Hired on/after July 1, 2012	25 years of service or Age 55 and vested	2.75% of FAC times total years of service
Teamsters Fire Assistant Chief	Hired before January 1, 2016	Hired on/after January 1, 2016	25 years of service or Age 55 and vested	Hired before 1/1/2017: 2.75% of FAC times total years of service Hired after 1/1/2017: 1.375% of FAC times total years of service
Teamsters Civilian Supervisors	Hired before July 2, 2012	Hired on/after July 2, 2012	Age 50 with 25 years of service or Age 60 and vested	Hired before 1/1/2017: 2.5% of FAC times total years of service Hired after 1/1/2017: 1.25% of FAC times total years of service
Teamsters Police Professional Assistants	Hired before July 2, 2012	Hired on/after July 2, 2012	Age 50 with 25 years of service or Age 60 and vested	Hired before 1/1/2018: 2.5% of FAC times total years of service Hired after 1/1/2018: 1.25% of FAC times total years of service
Teamsters Police Deputy Chiefs	Hired before July 2, 2012	Hired on/after July 2, 2012	25 years of service or Age 55 and vested	Hired before 6/5/2017: 2.75% of FAC times total years of service Hired after 6/5/2017: 1.375% of FAC times total years of service
Police Service Specialists	Hired before July 1, 2013	Hired on/after July 1, 2013	Age 50 with 25 years of service or Age 60 and vested	Hired before 1/1/2018: 2.5% of FAC times total years of service Hired after 1/1/2018: 1.25% of FAC times total years of service
Command Officers Association of Michigan (COAM)	Hired before July 1, 2013	Hired on/after July 1, 2013	25 years of service or Age 55 and vested	2.75% of FAC times total years of service

<sup>(1)</sup> Highest 3 consecutive calendar years out of last 10 or the last 36 months for members with 5 year vesting.

<sup>(2)</sup> Highest 5 consecutive calendar years out of last 10 or the last 60 months for members with 10 year vesting.

<sup>(3)</sup> Maximum benefit shall not exceed 80% of FAC.

**Annuity Withdrawal** - Upon regular retirement, a member may elect to withdraw his or her accumulated contributions. If this lump sum election is made, the retirement allowance is reduced by the actuarial equivalent of the amount withdrawn.





# City of Ann Arbor Employees' Retirement System

## Brief Summary of Benefit Provisions Evaluated

### June 30, 2023

#### Early Retirement (reduction factor for age):

**Eligibility** - All Members: Age 50 with 20 or more years of service.

**Benefit** - Computed as a regular retirement but the pension portion of the allowance is reduced by 0.33% for each month by which retirement precedes normal retirement eligibility.

#### Deferred Retirement (vested benefit):

**Eligibility** - Must be vested. Refer to table on page C-11.

**Annual Amount** - Computed as regular retirement but based upon service and final average compensation at time of termination. Benefit begins at age 60. A member may elect to receive all or a portion of his/her accumulated contributions at termination if the member's age plus service total at least 50 and receive a lesser benefit at age 60.

#### Duty Disability Retirement:

**Eligibility** - No age or service requirement.

**Annual Amount** - Police/Fire: Computed as a regular retirement. Minimum benefit is 25% of FAC. Upon termination of worker's compensation, additional service credit is granted for period in receipt of worker's compensation and benefit is recomputed.

*All Others:* Computed as a regular retirement. Minimum to age 60 is 18% of FAC. Minimum after age 60 is the sum of a) 12% of the portion of FAC not in excess of Social Security base plus b) 18% of FAC in excess of Social Security base. Upon termination of worker's compensation, additional service credit is granted for period in receipt of worker's compensation and benefit is recomputed.

#### Non-Duty Disability Retirement:

**Eligibility** - Must be vested. Refer to table on page C-11.

**Annual Amount** - Police/Fire: Computed as a regular retirement. Minimum benefit is 25% of FAC.

*All Others:* Computed as a regular retirement. Minimum to age 60 is 18% of FAC. Minimum after age 60 is the sum of a) 12% of the portion of FAC not in excess of Social Security base plus b) 18% of FAC in excess of Social Security base.

# City of Ann Arbor Employees' Retirement System

## Brief Summary of Benefit Provisions Evaluated

### June 30, 2023

#### Duty Death Before Retirement:

**Eligibility** - No age or service requirements.

**Annual Amount** - Computed as regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. If the member had less than 25 years of service at time of death, a minimum of 25 years of service will be used to compute the benefits. Worker's compensation payments made to the member's beneficiary will offset the benefits paid by the Retirement System. Upon termination of worker's compensation payments the amount paid to the beneficiary will be the greater of the annual worker's compensation payment and the computed 100% joint and survivor retirement benefit.

#### Non-Duty Death Before Retirement:

**Eligibility** - Must be vested. Refer to table on page C-11.

**Annual Amount** - Computed as regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. If there is no named beneficiary, a lump sum will be payable to the estate.

#### Post-Retirement Increases:

Subject to Ordinance provisions, adjustments may be made every July 1 to retirees and beneficiaries on the rolls at least 12 months. Adjustments are funded by financial gains and are not guaranteed.

#### Member Contributions:

*AFSCME, Non-Union and Teamsters hired on/after 1/1/2017, Assistant Fire Chiefs hired on/after 1/1/2017, Police Deputy Chiefs hired on/after 6/5/2017, Police Service Specialist and Police Professional Assistants hired on/after 01/01/2018: 3.0% of annual compensation.*

*AAPOA: 6.5% of annual compensation.*

*Fire: 6.5% of annual compensation.*

*All Others: 6.0% of annual compensation.*



# Miscellaneous and Technical Assumptions

## June 30, 2023

<b>Benefit Service:</b>	Exact Fractional service is used to determine the amount of benefit payable.
<b>Decrement Operation:</b>	Disability and mortality decrements do not operate during the first five years of service. Disability also does not operate during normal retirement eligibility.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing:</b>	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.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed dollar amount shown in this report.
<b>Liability Adjustments:</b>	None.
<b>Minimum Benefit Adjustments:</b>	Benefit amounts for members impacted by the minimum benefit provision pursuant to Section 1:574(1) of Chapter 18, Employees Retirement System of the City of Ann Arbor Code of Ordinances were assumed to increase 2.0% per year.
<b>Normal Form of Benefit:</b>	A straight life benefit is the normal form of benefit.
<b>Pay Adjustments:</b>	For any active members who were on a leave of absence during the year, the prior year valuation pay was used.
<b>Pay Increase Timing:</b>	Middle of (Fiscal) year.
<b>Service Credit Accruals:</b>	It is assumed that members accrue one year of service credit per year.

## Glossary

<b>Actuarial Accrued Liability</b>	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.”
<b>Accrued Service</b>	The service credited under the plan which was rendered before the date of the actuarial valuation.
<b>Actuarial Assumptions</b>	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.
<b>Actuarial Cost Method</b>	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.”
<b>Actuarial Equivalent</b>	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.
<b>Actuarial Present Value</b>	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.
<b>Amortization</b>	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.
<b>Experience Gain (Loss)</b>	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.

## Glossary

<b>Normal Cost</b>	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.
<b>Plan Termination Liability</b>	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.
<b>Reserve Account</b>	An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.
<b>Unfunded Actuarial Accrued Liability</b>	The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”
<b>Valuation Assets</b>	The value of current plan assets recognized for valuation purposes. Generally related to market value in a manner which spreads unexpected gains or losses over a period of future years.

**SECTION D**

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**PROJECTIONS**

## Projection Assumptions and Methods

For purposes of the funding projection, the following assumptions were used:

- 6.70% discount rate for determining liability.
- The Actuarial Value of Assets reflects the deferred gains and losses generated by the smoothing method. The current deferred amounts are recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section C. All future demographic experience is assumed to be exactly realized.
- The actuarially calculated contribution rate is determined as a percent of total payroll and contributed each year.
- Projections assume a 0% increase in the total active member population. All new future members are expected to enter the plan upon date of hire, under applicable plan provisions.
- The projections are based on the impact of the Minimum Required Policy.
- The projections were developed utilizing the GRS Foresight™ modelling tool.
- For the Sensitivity Analysis, all assumptions and methods are the same except investment returns on the Fair Value of Assets are assumed as follows:

Base:	6.70% for all future years
Optimistic:	7.70% for all future years
Pessimistic:	5.70% for all future years

## Projected Actuarial Results – Base Assumes 6.70% Returns in Future Years

Valuation as of June 30,	Employee Contributions	Employer Contributions	Total Contributions	Benefit Payments	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Unfunded Actuarial Accrued Liability	Fiscal Year Ending June 30,	Actuarially Determined Contribution	Estimated Funding Plan Contribution
(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(7)	(8) = (6) / (7)	(9) = (7) - (6)	(10)	(11)	(12)
2023	\$ 3,295,342	\$ 14,638,512	\$ 17,933,854	\$ 44,201,468	\$ 589,551,011	\$ 670,451,757	87.93%	\$ 80,900,746	2025	\$ 15,655,025	\$ 16,250,171
2024	3,126,155	15,428,435	18,554,590	45,809,745	609,213,366	679,293,928	89.68%	70,080,561	2026	15,070,690	16,575,174
2025	3,219,553	16,250,171	19,469,724	46,906,218	632,508,499	687,989,364	91.94%	55,480,865	2027	14,082,703	16,906,677
2026	3,315,659	16,575,174	19,890,833	47,994,176	636,394,494	696,488,590	91.37%	60,094,096	2028	14,923,558	17,244,811
2027	3,369,937	16,906,677	20,276,614	48,940,007	653,684,508	704,935,171	92.73%	51,250,663	2029	14,428,067	17,589,707
2028	3,431,055	17,244,811	20,675,866	49,904,025	666,824,525	713,161,808	93.50%	46,337,283	2030	14,351,816	17,941,501
2029	3,507,029	17,589,707	21,096,736	50,739,811	680,204,518	721,348,092	94.30%	41,143,574	2031	14,245,995	18,300,331
2030	3,584,117	17,941,501	21,525,618	51,415,654	694,120,461	729,692,071	95.13%	35,571,610	2032	14,090,003	18,666,338
2031	3,662,306	18,300,331	21,962,637	52,015,132	708,843,981	738,301,816	96.01%	29,457,835	2033	13,821,524	19,039,665
2032	3,749,728	18,666,338	22,416,066	52,642,294	724,303,521	747,187,506	96.94%	22,883,985	2034	13,459,013	19,420,458
2033	3,838,785	19,039,665	22,878,450	53,187,258	740,705,778	756,458,675	97.92%	15,752,897	2035	12,905,056	19,808,867
2034	3,929,481	19,420,458	23,349,939	53,640,647	758,222,174	766,271,904	98.95%	8,049,730	2036	12,111,839	20,205,044
2035	4,021,824	19,808,867	23,830,691	54,119,692	776,912,110	776,632,713	100.04%	(279,398)	2037	10,981,744	10,981,744
2036	4,125,171	20,205,044	24,330,215	54,593,651	796,879,298	787,606,928	101.18%	(9,272,370)	2038	11,281,454	11,281,454
2037	4,221,145	10,981,744	15,202,889	55,272,921	808,048,824	799,035,978	101.13%	(9,012,846)	2039	11,575,768	11,575,768
2038	4,328,803	11,281,454	15,610,258	56,287,687	819,338,793	810,594,759	101.08%	(8,744,033)	2040	11,898,307	11,898,307
2039	4,438,827	11,575,768	16,014,595	57,218,499	830,840,993	822,385,602	101.03%	(8,455,391)	2041	12,230,799	12,230,799
2040	4,551,249	11,898,307	16,449,556	58,152,961	842,597,567	834,451,968	100.98%	(8,145,599)	2042	12,583,413	12,583,413
2041	4,666,104	12,230,799	16,896,903	59,086,120	854,639,730	846,826,509	100.92%	(7,813,221)	2043	12,966,652	12,966,652
2042	4,794,922	12,583,413	17,378,335	59,946,713	867,096,848	859,628,218	100.87%	(7,468,631)	2044	13,365,498	13,365,498
2043	4,938,942	12,966,652	17,905,594	60,749,383	880,103,953	872,992,106	100.81%	(7,111,847)	2045	13,750,257	13,750,257
2044	5,087,170	13,365,498	18,452,668	61,657,892	893,608,989	886,878,889	100.76%	(6,730,100)	2046	14,168,449	14,168,449
2045	5,239,723	13,750,257	18,989,980	62,685,713	907,511,922	901,190,303	100.70%	(6,321,618)	2047	14,632,926	14,632,926
2046	5,409,919	14,168,449	19,578,368	63,509,066	922,103,513	916,205,164	100.64%	(5,898,349)	2048	15,138,411	15,138,411
2047	5,585,609	14,632,926	20,218,535	64,170,754	937,650,499	932,204,268	100.58%	(5,446,232)	2049	15,635,629	15,635,629

Section 1.3 of the City of Ann Arbor General Pension Policy states:

“The City of Ann Arbor will strive to achieve 100% funding of the City of Ann Arbor Employees’ Retirement Plan. To the extent that 100% funding has been achieved, the City will continue to fund at a minimum the Normal Cost as defined by an outside actuary. To the extent that 100% funding had not been achieved, the City shall budget each fiscal year the higher of the ADC or the existing level of funding in the current budget year adjusted annually for the change in general fund budgeted revenues. In some years this may result in an excess contribution to the Pension Fund, which will serve to pay down the unfunded actuarial accrued liability and reduce future city cost increases.”





## Projected Actuarial Results – Optimistic Assumes 7.70% Returns in Future Years

Valuation as of June 30,	Employee Contributions	Employer Contributions	Total Contributions	Benefit Payments	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Unfunded Actuarial Accrued Liability	Fiscal Year Ending June 30,	Actuarially Determined Contribution	Estimated Funding Plan Contribution
(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(7)	(8) = (6) / (7)	(9) = (7) - (6)	(10)	(11)	(12)
2023	\$ 3,295,342	\$ 14,638,512	\$ 17,933,854	\$ 44,201,468	\$ 589,551,011	\$ 670,451,757	87.93%	\$ 80,900,746	2025	\$ 15,655,025	\$ 16,250,171
2024	3,126,155	15,428,435	18,554,590	45,809,745	610,396,549	679,293,928	89.86%	68,897,379	2026	14,955,795	16,575,174
2025	3,219,553	16,250,171	19,469,724	46,906,218	636,235,585	687,989,364	92.48%	51,753,778	2027	13,708,307	16,906,677
2026	3,315,659	16,575,174	19,890,833	47,994,176	644,206,886	696,488,590	92.49%	52,281,704	2028	14,108,832	17,244,811
2027	3,369,937	16,906,677	20,276,614	48,940,007	667,305,621	704,935,171	94.66%	37,629,549	2029	12,947,267	17,589,707
2028	3,431,055	17,244,811	20,675,866	49,904,025	688,159,652	713,161,808	96.49%	25,002,156	2030	11,922,352	17,941,501
2029	3,507,029	17,589,707	21,096,736	50,739,811	710,156,074	721,348,092	98.45%	11,192,017	2031	10,653,496	18,300,331
2030	3,584,117	17,941,501	21,525,618	51,415,654	733,606,660	729,692,071	100.54%	(3,914,589)	2032	9,566,015	9,566,015
2031	3,662,306	18,300,331	21,962,637	52,015,132	758,810,706	738,301,816	102.78%	(20,508,891)	2033	9,817,330	9,817,330
2032	3,749,728	9,566,015	13,315,744	52,642,294	776,325,634	747,187,506	103.90%	(29,138,128)	2034	10,101,961	10,101,961
2033	3,838,785	9,817,330	13,656,115	53,187,258	795,049,215	756,458,675	105.10%	(38,590,540)	2035	10,380,735	10,380,735
2034	3,929,481	10,101,961	14,031,442	53,640,647	815,189,579	766,271,904	106.38%	(48,917,675)	2036	10,680,930	10,680,930
2035	4,021,824	10,380,735	14,402,559	54,119,692	836,806,171	776,632,713	107.75%	(60,173,458)	2037	10,981,744	10,981,744
2036	4,125,171	10,680,930	14,806,101	54,593,651	860,031,652	787,606,928	109.20%	(72,424,724)	2038	11,281,454	11,281,454
2037	4,221,145	10,981,744	15,202,889	55,272,921	884,759,663	799,035,978	110.73%	(85,723,685)	2039	11,575,768	11,575,768
2038	4,328,803	11,281,454	15,610,258	56,287,687	910,768,976	810,594,759	112.36%	(100,174,216)	2040	11,898,307	11,898,307
2039	4,438,827	11,575,768	16,014,595	57,218,499	938,244,056	822,385,602	114.09%	(115,858,454)	2041	12,230,799	12,230,799
2040	4,551,249	11,898,307	16,449,556	58,152,961	967,326,908	834,451,968	115.92%	(132,874,941)	2042	12,583,413	12,583,413
2041	4,666,104	12,230,799	16,896,903	59,086,120	998,156,096	846,826,509	117.87%	(151,329,587)	2043	12,966,652	12,966,652
2042	4,794,922	12,583,413	17,378,335	59,946,713	1,030,976,399	859,628,218	119.93%	(171,348,181)	2044	13,365,498	13,365,498
2043	4,938,942	12,966,652	17,905,594	60,749,383	1,066,047,536	872,992,106	122.11%	(193,055,430)	2045	13,750,257	13,750,257
2044	5,087,170	13,365,498	18,452,668	61,657,892	1,103,452,444	886,878,889	124.42%	(216,573,555)	2046	14,168,449	14,168,449
2045	5,239,723	13,750,257	18,989,980	62,685,713	1,143,236,930	901,190,303	126.86%	(242,046,627)	2047	14,632,926	14,632,926
2046	5,409,919	14,168,449	19,578,368	63,509,066	1,185,849,422	916,205,164	129.43%	(269,644,258)	2048	15,138,411	15,138,411
2047	5,585,609	14,632,926	20,218,535	64,170,754	1,231,727,446	932,204,268	132.13%	(299,523,179)	2049	15,635,629	15,635,629

Section 1.3 of the City of Ann Arbor General Pension Policy states:

“The City of Ann Arbor will strive to achieve 100% funding of the City of Ann Arbor Employees’ Retirement Plan. To the extent that 100% funding has been achieved, the City will continue to fund at a minimum the Normal Cost as defined by an outside actuary. To the extent that 100% funding had not been achieved, the City shall budget each fiscal year the higher of the ADC or the existing level of funding in the current budget year adjusted annually for the change in general fund budgeted revenues. In some years this may result in an excess contribution to the Pension Fund, which will serve to pay down the unfunded actuarial accrued liability and reduce future city cost increases.”



## Projected Actuarial Results – Pessimistic Assumes 5.70% Returns in Future Years

Valuation as of June 30,	Employee Contributions	Employer Contributions	Total Contributions	Benefit Payments	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Unfunded Actuarial Accrued Liability	Fiscal Year Ending June 30,	Actuarially Determined Contribution	Estimated Funding Plan Contribution
(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(7)	(8) = (6) / (7)	(9) = (7) - (6)	(10)	(11)	(12)
2023	\$ 3,295,342	\$ 14,638,512	\$ 17,933,854	\$ 44,201,468	\$ 589,551,011	\$ 670,451,757	87.93%	\$ 80,900,746	2025	\$ 15,652,264	\$ 16,250,171
2024	3,126,155	15,428,435	18,554,590	45,809,745	608,030,184	679,293,928	89.51%	71,263,744	2026	15,185,585	16,575,174
2025	3,219,553	16,250,171	19,469,724	46,906,218	628,805,077	687,989,364	91.40%	59,184,287	2027	14,454,721	16,906,677
2026	3,315,659	16,575,174	19,890,833	47,994,176	628,681,655	696,488,590	90.26%	67,806,935	2028	15,727,903	17,244,811
2027	3,369,937	16,906,677	20,276,614	48,940,007	640,324,871	704,935,171	90.83%	64,610,300	2029	15,880,441	17,589,707
2028	3,431,055	17,244,811	20,675,866	49,904,025	646,038,201	713,161,808	90.59%	67,123,607	2030	16,718,788	17,941,501
2029	3,507,029	17,589,707	21,096,736	50,739,811	651,259,749	721,348,092	90.28%	70,088,343	2031	17,717,736	18,300,331
2030	3,584,117	17,941,501	21,525,618	51,415,654	656,297,468	729,692,071	89.94%	73,394,603	2032	18,900,321	18,666,338
2031	3,662,306	18,300,331	21,962,637	52,015,132	661,424,988	738,301,816	89.59%	76,876,828	2033	20,267,173	19,278,327
2032	3,749,728	18,900,321	22,650,050	52,642,294	666,800,998	747,187,506	89.24%	80,386,508	2034	21,894,563	20,672,517
2033	3,838,785	20,267,173	24,105,958	53,187,258	673,404,228	756,458,675	89.02%	83,054,447	2035	23,689,781	22,332,454
2034	3,929,481	21,894,563	25,824,044	53,640,647	681,686,612	766,271,904	88.96%	84,585,292	2036	25,716,700	24,163,577
2035	4,021,824	23,689,781	27,711,605	54,119,692	691,905,032	776,632,713	89.09%	84,727,681	2037	28,031,067	26,231,034
2036	4,125,171	25,716,700	29,841,871	54,593,651	704,434,066	787,606,928	89.44%	83,172,862	2038	30,761,854	28,591,689
2037	4,221,145	28,031,067	32,252,212	55,272,921	719,489,702	799,035,978	90.04%	79,546,276	2039	34,157,010	31,377,091
2038	4,328,803	30,761,854	35,090,657	56,287,687	737,315,493	810,594,759	90.96%	73,279,266	2040	38,782,553	34,840,150
2039	4,438,827	34,157,010	38,595,837	57,218,499	758,847,287	822,385,602	92.27%	63,538,314	2041	46,110,677	39,558,204
2040	4,551,249	38,782,553	43,333,803	58,152,961	785,572,411	834,451,968	94.14%	48,879,556	2042	63,073,889	47,032,891
2041	4,666,104	46,110,677	50,776,781	59,086,120	820,594,955	846,826,509	96.90%	26,231,555	2043	40,062,717	64,335,367
2042	4,794,922	63,073,889	67,868,811	59,946,713	874,454,888	859,628,218	101.72%	(14,826,670)	2044	13,365,498	13,365,498
2043	4,938,942	64,335,367	69,274,309	60,749,383	932,180,475	872,992,106	106.78%	(59,188,369)	2045	13,750,257	13,750,257
2044	5,087,170	13,365,498	18,452,668	61,657,892	939,911,912	886,878,889	105.98%	(53,033,023)	2046	14,168,449	14,168,449
2045	5,239,723	13,750,257	18,989,980	62,685,713	947,281,464	901,190,303	105.11%	(46,091,161)	2047	14,632,926	14,632,926
2046	5,409,919	14,168,449	19,578,368	63,509,066	954,571,917	916,205,164	104.19%	(38,366,753)	2048	15,138,411	15,138,411
2047	5,585,609	14,632,926	20,218,535	64,170,754	962,071,443	932,204,268	103.20%	(29,867,175)	2049	15,635,629	15,635,629

Section 1.3 of the City of Ann Arbor General Pension Policy states:

“The City of Ann Arbor will strive to achieve 100% funding of the City of Ann Arbor Employees’ Retirement Plan. To the extent that 100% funding has been achieved, the City will continue to fund at a minimum the Normal Cost as defined by an outside actuary. To the extent that 100% funding had not been achieved, the City shall budget each fiscal year the higher of the ADC or the existing level of funding in the current budget year adjusted annually for the change in general fund budgeted revenues. In some years this may result in an excess contribution to the Pension Fund, which will serve to pay down the unfunded actuarial accrued liability and reduce future city cost increases.”



## APPENDIX

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## Risk Measures

Actuarial Valuation Date	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL) Entry Age	(3) Unfunded AAL (UAAL) (2) - (1)	(4) Covered Payroll	(5) Funded Ratio (1) / (2)	(6) Assets / Payroll (1) / (4)	(7) Liability / Payroll (2) / (4)	(8) Unfunded / Payroll (3) / (4)
6/30/2014	\$433,854,000	\$523,461,000	\$89,607,000	\$47,956,745	82.9 %	904.7 %	1091.5 %	186.8 %
6/30/2015	459,480,000	533,198,000	73,718,000	48,759,189	86.2	942.3	1093.5	151.2
6/30/2016	470,029,000	548,201,000	78,172,000	50,057,471	85.7	939.0	1095.1	156.2
6/30/2017	489,943,000	571,074,000	81,131,000	53,583,277	85.8	914.4	1065.8	151.4
6/30/2018 <sup>(1), (2)</sup>	505,015,000	583,601,000	78,586,000	53,231,121	86.5	948.7	1096.4	147.6
6/30/2019	513,611,366	601,108,981	87,497,615	55,269,697	85.4	929.3	1087.6	158.3
6/30/2020 <sup>(3)</sup>	520,439,737	614,077,223	93,637,486	56,188,540	84.8	926.2	1092.9	166.6
6/30/2021 <sup>(3)</sup>	554,096,977	627,144,090	73,047,113	55,047,831	88.4	1006.6	1139.3	132.7
6/30/2022 <sup>(3)</sup>	570,654,330	652,441,776	81,787,446	57,278,684	87.5	996.3	1139.1	142.8
6/30/2023 <sup>(1),(4)</sup>	589,551,011	670,451,757	80,900,746	59,810,694	87.9	985.7	1121.0	135.3

<sup>(1)</sup> Revised actuarial assumptions.

<sup>(2)</sup> Valuation results for 2018 and prior years were calculated by the City's prior actuary.

<sup>(3)</sup> Reflects a change in the investment return assumption.

<sup>(4)</sup> Change in benefit provisions.

(5) The Funded Ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(6) and (7) The ratios of assets and liabilities to payroll gives an indication of both maturity and volatility. Many systems have ratios between 5 and 7. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of pay. For systems that are closed to new hires, it is expected that these ratios will grow as payroll declines.

(8) The ratio of the unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 3 or 4 may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

## Risk Commentary

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:

- **Investment Risk** – actual investment returns may differ from the expected returns;
- **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;
- **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;
- **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
- **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.

The computed contribution amount shown on page A-3 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined amounts do not necessarily guarantee benefit security.



# Risk Commentary (Concluded)

## 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:

	<u>2023</u>	<u>2022</u>	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>
Ratio of the market value of assets to payroll	10.13	9.97	11.38	9.12	9.28	9.17
Ratio of actuarial accrued liability to payroll	11.21	11.39	11.39	10.93	10.88	10.63
Ratio of actives to retirees and beneficiaries	0.62	0.62	0.63	0.66	0.66	0.65
Ratio of net cash flow to market value of assets	-4.5%	-4.2%	-3.6%	-4.5%	-4.2%	-4.3%

## 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 10.0 times the payroll, a return on assets 5% different than assumed would equal 50% 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, and stochastic modeling.

# 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” (LDRM). The rationale that the ASB cited for the calculation and disclosure of the LDRM 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 LDRM

One of the fundamental financial objectives of the City of Ann Arbor Employees’ 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 of the City of Ann Arbor Employees’ Retirement System is set equal to the **expected return** on the System’s diversified portfolio of assets (referred to sometimes as the investment return assumption). For the City of Ann Arbor Employees’ Retirement System, the investment return assumption is 6.70%.

The LDRM 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 LDRM is very dependent upon market interest rates at the time of the LDRM measurement. The lower the market interest rates, the higher the LDRM, and vice versa. The LDRM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the June 2023 Treasury Yield Curve Spot Rates (end of month). The 1-, 5-, 10- and 30-year rates follow: 5.29%, 3.99%, 3.61% and 3.84%. 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 LDRM) is one illustration of the savings the Sponsor anticipates by taking on risk in a diversified portfolio.**

Valuation Accrued Liabilities	LDRM
\$670,451,757	\$928,664,621

## State Reporting Assumptions as of June 30, 2023

The Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017, was put into law effective December 20, 2017. One outcome of the law is the requirement for the local unit of government to provide select reporting disclosures to the State. Section 5(1) of the Act provides the State treasurer with the authority to annually establish uniform actuarial assumptions for purposes of developing the requisite disclosures. Below you will find information which may be used to assist the local unit of government with required reporting.

Uniform Assumptions, as applicable to the measurement and the required disclosures under uniform assumptions are denoted below. Additional discussion of PA 202 and uniform assumptions may be found on the State website in the uniform assumption memo dated April 4, 2023.

Uniform Assumption	PA 202	Valuation Assumptions Used	Uniform Assumptions Used
Investment Rate of Return Discount Rate	Maximum of 6.85% <sup>(1)</sup>	6.70%	6.70%
Salary Increase	Minimum of 3.25% or based on experience study within last 5 years	3.50% + Merit and longevity	3.50% + Merit and longevity
Mortality	Version of Pub-2010 tables with Generational mortality improvement using scale MP-2021 or based on experience study within last 5 years	A version of Pub-2010 tables with Generational mortality improvement using scale MP-2021 (based on an experience study dated May 11, 2023)	A version of Pub-2010 tables with Generational mortality improvement using scale MP-2021 (based on an experience study dated May 11, 2023)
Amortization of the Unfunded Accrued Actuarial Liability:			
Period	Maximum Period of 16 Years	18 years	<b>16 years</b>
Method	Closed Plans: Level Dollar Open Plans: Level Dollar or Level Percent of Payroll	Level Dollar	Level Dollar
Type	Closed	Closed	Closed

<sup>(1)</sup> A blended rate calculated using GASB Statement No. 68 methodology. For periods in which projected plan assets are sufficient to make projected benefit payments – maximum of 6.85%; for periods in which projected plan assets are NOT sufficient to make projected benefit payments – 3.54%.



## State Reporting Assumptions as of June 30, 2023

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form 5572). Additional resources are available on the State website.

<b>3</b>	<b>Financial Information<sup>(1)</sup></b>	
4	Enter retirement pension system's assets (system fiduciary net position ending)	\$ 589,551,011
5	Enter retirement pension system's liabilities (total pension liability ending)	\$ 670,451,757
6	Funded ratio	Auto <sup>(5)</sup>
7	Actuarially Determined Contribution (ADC)	\$ 15,655,025
8	Governmental Fund Revenues	TBD <sup>(4)</sup>
9	All systems combined ADC/Governmental fund revenues	Auto <sup>(5)</sup>
<b>10</b>	<b>Membership<sup>(1)</sup></b>	
11	Indicate number of active members	728
12	Indicate number of inactive members	105
13	Indicate number of retirees and beneficiaries	1,177
<b>14</b>	<b>Investment Performance</b>	
15	Enter actual rate of return - prior 1-year period	TBD <sup>(4)</sup>
16	Enter actual rate of return - prior 5-year period	TBD <sup>(4)</sup>
17	Enter actual rate of return - prior 10-year period	TBD <sup>(4)</sup>
<b>18</b>	<b>Actuarial Assumptions<sup>(1)</sup></b>	
19	Actuarial assumed rate of investment return <sup>(2)</sup>	6.70%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Dollar
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any	18
22	Is each division within the system closed to new employees?	No
<b>23</b>	<b>Uniform Assumptions<sup>(3)</sup></b>	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$ 589,551,011
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	\$ 670,451,757
26	Funded ratio using uniform assumptions	Auto <sup>(5)</sup>
27	Actuarially Determined Contribution (ADC) using uniform assumptions	\$ 15,701,399
28	All systems combined ADC/Governmental fund revenues	Auto <sup>(5)</sup>

<sup>(1)</sup> Information on lines 4-5, lines 11-13, and lines 19-22 can be found in the Annual Actuarial valuation report.

<sup>(2)</sup> Net of investment expenses.

<sup>(3)</sup> Information on lines 24-28 is based on assumption listed on the prior page as of the most recent valuation date, June 30, 2023.

<sup>(4)</sup> To be supplied by the City of Ann Arbor.

<sup>(5)</sup> Automatically calculated by State of Michigan Form 5572.