



Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report

December 31, 2022 - Grosse Pointe Park, City of (8201)





Spring 2023

Grosse Pointe Park, City of

In care of:
Municipal Employees' Retirement System of Michigan
1134 Municipal Way
Lansing, Michigan 48917

This report presents the results of the Annual Actuarial Valuation, prepared for Grosse Pointe Park, City of (8201) as of December 31, 2022. The report includes the determination of liabilities and contribution rates resulting from the participation in the Municipal Employees' Retirement System of Michigan ("MERS"). This report contains the minimum actuarially determined contribution requirement, in alignment with the MERS Plan Document, Actuarial Policy, the Michigan Constitution, and governing statutes. Grosse Pointe Park, City of is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees.

The purposes of this valuation are to:

- Measure funding progress as of December 31, 2022,
- Establish contribution requirements for the fiscal year beginning July 1, 2024,
- Provide information regarding the identification and assessment of risk,
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements, and
- Provide information to assist the local unit of government with state reporting requirements.

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 December 31, 2022. The valuation was based upon information furnished by MERS 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 MERS.

The Municipal Employees' Retirement Act, PA 427 of 1984 and the MERS' Plan Document Article VI Sec. 71 (1)(d), provides the MERS Board with the authority to set actuarial assumptions and methods after consultation with the actuary. As the fiduciary of the plan, the MERS Retirement Board sets certain assumptions for funding and GASB purposes. These assumptions are reviewed regularly through a comprehensive study, most recently in the Fall of 2021. The MERS Retirement Board adopted a Dedicated Gains Policy at the February 17, 2022 Board meeting. The Dedicated Gains Policy automatically reduces the assumed rate of investment return in conjunction with recognizing excess investment gains to mitigate the impact on employer contributions the first year. The policy was effective with the December 31, 2021 annual actuarial valuation.

The Michigan Department of Treasury provides required assumptions to be used for purposes of Public Act 202 reporting. These assumptions are for reporting purposes only and do not impact required contributions. Please refer to the State Reporting page found at the end of this report for information for this filing.

For a full list of all the assumptions used, please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:

<https://www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2022AnnualActuarialValuation-Appendix.pdf>

The actuarial assumptions used for this valuation, including the assumed rate of investment return, are reasonable for purposes of the measurement.

This report reflects the impact of COVID-19 experience through December 31, 2022. At this time, no future assumptions have been adjusted as a result of COVID-19. Actual future experience will be reflected in each subsequent annual valuation, as experience emerges.

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 Grosse Pointe Park, City of as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

Rebecca L. Stouffer, Mark Buis, Kurt Dosson, and Shana M. Neeson 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. GRS maintains independent consulting agreements with certain local units of government for services unrelated to the actuarial consulting services provided in this report.



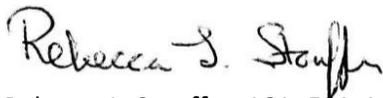
The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

This information is purely actuarial in nature. It is not intended to serve as a substitute for legal, accounting, or investment advice.

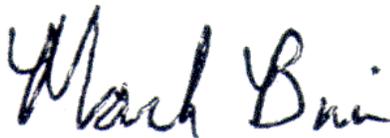
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible for the consequences of any unauthorized use. 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.

If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, that conditions have changed since the calculations were made, that the information provided in this report is inaccurate or is in anyway incomplete, or if you need further information in order to make an informed decision on the subject matter in this report, please contact your Regional Manager at 1.800.767.MERS (6377).

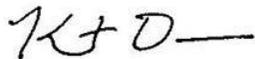
Sincerely,
Gabriel, Roeder, Smith & Company



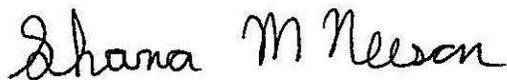
Rebecca L. Stouffer, ASA, FCA, MAAA



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Table of Contents

Executive Summary	6
Table 1: Employer Contribution Details for the Fiscal Year Beginning July 1, 2024	14
Table 2: Benefit Provisions	16
Table 3: Participant Summary	19
Table 4: Reported Assets (Market Value)	21
Table 5: Flow of Valuation Assets	22
Table 6: Actuarial Accrued Liabilities and Valuation Assets as of December 31, 2022	23
Table 7: Actuarial Accrued Liabilities - Comparative Schedule	25
Tables 8 and 9: Division-Based Comparative Schedules	26
Table 10: Division-Based Layered Amortization Schedule	35
GASB Statement No. 68 Information	43
Benefit Provision History	44
Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method	48
Risk Commentary	49
State Reporting	51



Executive Summary

Funded Ratio

The funded ratio of a plan is the percentage of the dollar value of the actuarial accrued liability that is covered by the actuarial value of assets. While the funded ratio may be a useful plan measurement, understanding a plan's funding trend may be more important than a particular point in time. Refer to Table 7 to find a history of this information.

	12/31/2022	12/31/2021
Funded Ratio*	55%	56%

* Reflects assets from Surplus divisions, if any.

Throughout this report are references to valuation results generated prior to the 2018 valuation date. Results prior to 2018 were received directly from the prior actuary or extracted from the previous valuation system by MERS's technology service provider.

Required Employer Contributions

Your required employer contributions are shown in the following table. Employee contributions, if any, are in addition to the employer contributions.

Effective with the December 31, 2021 valuation, the MERS Retirement Board adopted a Dedicated Gains Policy which allows for recognition of asset gains in excess of a set threshold in combination with lowering the assumed rate of investment return. Effective with the 2020 and 2019 valuations respectively, the MERS Retirement Board adopted updated demographic and economic assumptions. The combined impact of the prior 2020 and 2019 demographic and economic assumption changes may be phased in. This valuation reflects the last year of phase-in. The combined impact of the past economic and demographic changes will be fully reflected in the 2023 annual actuarial valuation.

By default, MERS will invoice you based on the amount in the “No Phase-in” columns. This amount will be considered the minimum required contribution unless you request to be billed the “Phase-in” rates. If you wish to be billed using the phased-in rates, please contact MERS, at which point the alternate minimum required contribution will be the amount in the “Phase-in” columns.

	Percentage of Payroll				Monthly \$ Based on Projected Payroll			
	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in
	12/31/2022	12/31/2022	12/31/2021	12/31/2021	12/31/2022	12/31/2022	12/31/2021	12/31/2021
Valuation Date:	July 1, 2024	July 1, 2024	July 1, 2023	July 1, 2023	July 1, 2024	July 1, 2024	July 1, 2023	July 1, 2023
Fiscal Year Beginning:	2024	2024	2023	2023	2024	2024	2023	2023
Division								
02 - Plce FOP	-	-	-	-	\$ 152,064	\$ 155,863	\$ 137,790	\$ 145,388
10 - Gnrl Non	-	-	-	-	44,934	46,359	39,900	42,750
11 - Manager/Finance	-	-	-	-	3,282	3,487	2,228	2,638
12 - Dispatch	-	-	-	-	2,772	2,974	2,275	2,679
14 - General Non-union after 3/1/1	6.62%	6.62%	6.45%	6.45%	6,130	6,130	6,384	6,384
15 - Dispatch after 3/1/2014	4.35%	4.35%	0.00%	0.00%	352	352	0	0
16 - Manager/Finance aft 3/1/14	8.31%	8.31%	9.62%	9.62%	1,378	1,378	860	860
21 - Police FOP after 3/1/2014	7.22%	7.71%	7.09%	7.89%	7,777	8,300	9,329	10,375
Total Municipality - Estimated Monthly Contribution					\$ 218,689	\$ 224,843	\$ 198,766	\$ 211,074
Total Municipality - Estimated Annual Contribution					\$ 2,624,268	\$ 2,698,116	\$ 2,385,192	\$ 2,532,888

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2022	12/31/2021
Division		
02 - Plce FOP	5.50%	5.50%
10 - Gnrl Non	4.50%	4.50%
11 - Manager/Finance	3.00%	3.00%
12 - Dispatch	4.50%	4.50%
14 - General Non-union after 3/1/1	4.50%	4.50%
15 - Dispatch after 3/1/2014	4.50%	4.50%
16 - Manager/Finance aft 3/1/14	3.00%	3.00%
21 - Police FOP after 3/1/2014	5.50%	5.50%

The employer may contribute more than the minimum required contributions, as these additional contributions will earn investment income and may result in lower future contribution requirements. Employers making contributions in excess of the minimum requirements may elect to apply the excess contribution immediately to a particular division, or segregate the excess into one or more “Surplus” divisions. An election in the first case would immediately reduce any unfunded accrued liability and lower the amortization payments throughout the remaining amortization period. An election to set up one or more Surplus divisions would not immediately lower future contributions, however the assets from the Surplus division(s) could be transferred to an unfunded division in the future to reduce the unfunded liability in future



years, or to be used to pay all or a portion of the minimum required contribution in a future year. For purposes of this report, the assets in any Surplus division have been included in the municipality's total assets, unfunded accrued liability, and funded status; however, these assets are not used in calculating the minimum required contribution.

MERS strongly encourages employers to contribute more than the minimum contribution shown above. With the implemented Dedicated Gains policy, market gains and losses will continue to be smoothed over five years; however, since excess returns are used to lower the investment assumption, there will be fewer gains to smooth in down markets. Having additional funds in Surplus divisions will assist plans with navigating any market volatility.

Assuming that experience of the plan meets actuarial assumptions:

- To accelerate to a 100% funding ratio in 10 years, estimated monthly employer contributions for the fiscal year beginning in 2024 for the entire employer would be \$310,864, instead of \$224,843.

How and Why Do These Numbers Change?

In a defined benefit plan, contributions vary from one annual actuarial valuation to the next as a result of the following:

- Changes in benefit provisions (see Table 2),
- Changes in actuarial assumptions and methods (see the Appendix), and
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions.

These impacts are reflected in various tables in the report. For more information, please contact your Regional Manager.

Comments on Investment Rate of Return Assumption

A defined benefit plan is funded by employer contributions, participant contributions, and investment earnings. Investment earnings have historically provided a significant portion of the funding. The larger the share of benefits being provided from investment returns, the smaller the required contributions, and vice versa. Determining the contributions required to prefund the promised retirement benefits requires an assumption of what investment earnings are expected to add to the fund over a long period of time. This is called the **Investment Return Assumption**.

The MERS Investment Return Assumption is **7.00%** per year. This, along with all of our other actuarial assumptions, is reviewed at least every five years in an Experience Study that compares the assumptions used against actual experience and recommends adjustments if necessary. If your municipality would like to explore contributions at lower assumed investment return assumptions, please review the "What If" projection scenarios later in this report.

Assumption and Method Change in 2022

Effective February 17, 2022, the MERS Retirement Board adopted a dedicated gains policy that automatically lowers the assumed rate of investment return by using excess asset gains to mitigate large increases in required contributions to the Plan. Full details of this dedicated gains policy are available in the Actuarial Policy found on the MERS [website](#). Some goals of the dedicated gains policy are to:



- Provide a systematic approach to lower the assumed rate of investment return between experience studies, and
- Use excess gains to cover both the increase in normal cost and any increase in UAL payment the first contribution year after application (i.e., minimize the first-year impact (i.e., increase) in employer contributions).

The dedicated gains policy was implemented with the December 31, 2021 annual actuarial valuation and was reflected in the computed employer contribution amounts beginning in fiscal year 2023.

Investment performance measured for the one-year period ending December 31, 2022 did not result in excess gains for use in lowering the assumed rate of investment return. As a result, this assumption remains at 7.00%.

Furthermore, there were no other assumption or method changes in 2022.

Protecting MI Pension Grant Program

On July 1, 2022, Michigan lawmakers passed the state budget for the 2022-23 fiscal year. As a part of the budget, \$750 million was earmarked for underfunded municipal pension plans in counties, cities, townships, villages and road commissions across the state. Known as the **Protecting MI Pension Grant Program**, the legislation is designed to support municipal plans that are under 60% funded.

As of the valuation date the amount of funds and list of grant recipients is not yet known. Any funds received by municipalities will be considered in a future valuation.

Comments on Asset Smoothing

To avoid dramatic spikes and dips in annual contribution requirements due to short-term fluctuations in asset markets, MERS applies a technique called **asset smoothing**. This spreads out each year's investment gains or losses over the prior year and the following four years. After initial application of asset smoothing, remaining excess market gains are used to buy down the assumed rate of investment return and increase the level of valuation assets, to the extent allowed by the dedicated gains policy. This smoothing method is used to determine your actuarial value of assets (valuation assets), which is then used to determine both your funded ratio and your required contributions. **The (smoothed) actuarial rate of return for 2022 was 3.51%, while the actual market rate of return was (10.61%).** To see historical details of the market rate of return compared to the smoothed actuarial rate of return, refer to this report's Appendix or view the "[How Smoothing Works](#)" [video](#) on the [Defined Benefit resource page](#) of the MERS website.

As of December 31, 2022, the actuarial value of assets is 116% of market value due to asset smoothing. This means that there are deferred investment losses, which will put upward pressure on contributions in the short term.

If the December 31, 2022 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 47% (instead of 55%); and
- Your total employer contribution requirement for the fiscal year starting July 1, 2024 would be \$3,073,764 (instead of \$2,698,116).

Alternate Scenarios to Estimate the Potential Volatility of Results ("What If Scenarios")



The calculations in this report are based on assumptions about long-term economic and demographic behavior. These assumptions will never materialize in a given year, except by coincidence. Therefore, the results will vary from one year to the next. The volatility of the results depends upon the characteristics of the plan. For example:

- Open divisions that have substantial assets compared to their active employee payroll will have more volatile employer contribution rates due to investment return fluctuations.
- Open divisions that have substantial accrued liability compared to their active employee payroll will have more volatile employer contribution rates due to demographic experience fluctuations.
- Small divisions will have more volatile contribution patterns than larger divisions because statistical fluctuations are relatively larger among small populations.
- Shorter amortization periods result in more volatile contribution patterns.

Many assumptions are important in determining the required employer contributions. In the following table, we show the impact of varying the Investment Return assumption. Lower investment returns would generally result in higher required employer contributions, and vice versa. The three economic scenarios below provide a quantitative risk assessment for the impact of investment returns on the plan’s projected financial condition for funding purposes.

The relative impact of the economic scenarios below will vary from year to year, as the participant demographics change. The impact of each scenario should be analyzed for a given year, not from year to year. The results in the table are based on the December 31, 2022 valuation and are for the municipality in total, not by division. These results do not reflect a phase-in of the impact of the actuarial assumptions updated in the 2020 and 2019 valuations. There is no phase-in of dedicated gains.

It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one valuation to the next, sometimes significantly depending on the group’s size. Projections are not predictions. Future valuations will be based on actual future experience.

12/31/2022 Valuation Results	Lower Future Annual Returns	Lower Future Annual Returns	Valuation Assumptions
Investment Return Assumption	5.00%	6.00%	7.00%
Accrued Liability	\$ 72,131,656	\$ 64,099,919	\$ 57,458,072
Valuation Assets ¹	\$ 31,499,696	\$ 31,499,696	\$ 31,499,696
Unfunded Accrued Liability	\$ 40,631,960	\$ 32,600,223	\$ 25,958,376
Funded Ratio	44%	49%	55%
Monthly Normal Cost	\$ 61,256	\$ 42,995	\$ 29,349
Monthly Amortization Payment	\$ 262,172	\$ 227,728	\$ 195,494
Total Employer Contribution²	\$ 323,428	\$ 270,723	\$ 224,843

¹ The Valuation Assets include assets from Surplus divisions, if any.

² If assets exceed accrued liabilities for a division, the division may have an overfunding credit to reduce the division’s employer contribution requirement. If the overfunding credit is larger than the normal cost, the division’s full credit is included in the municipality’s amortization payment above but the division’s total contribution requirement is zero. This can cause the displayed normal cost and amortization payment to not add up to the displayed total employer contribution.

Projection Scenarios



The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate economic assumption scenarios. All three projections account for the past investment experience that will continue to affect the actuarial rate of return in the short term.

The 7.00% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.00% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively and make contributions in addition to the minimum requirements. The 6.00% and 5.00% projection scenarios provide an indication of the potential required employer contribution if these assumptions were met over the long term.

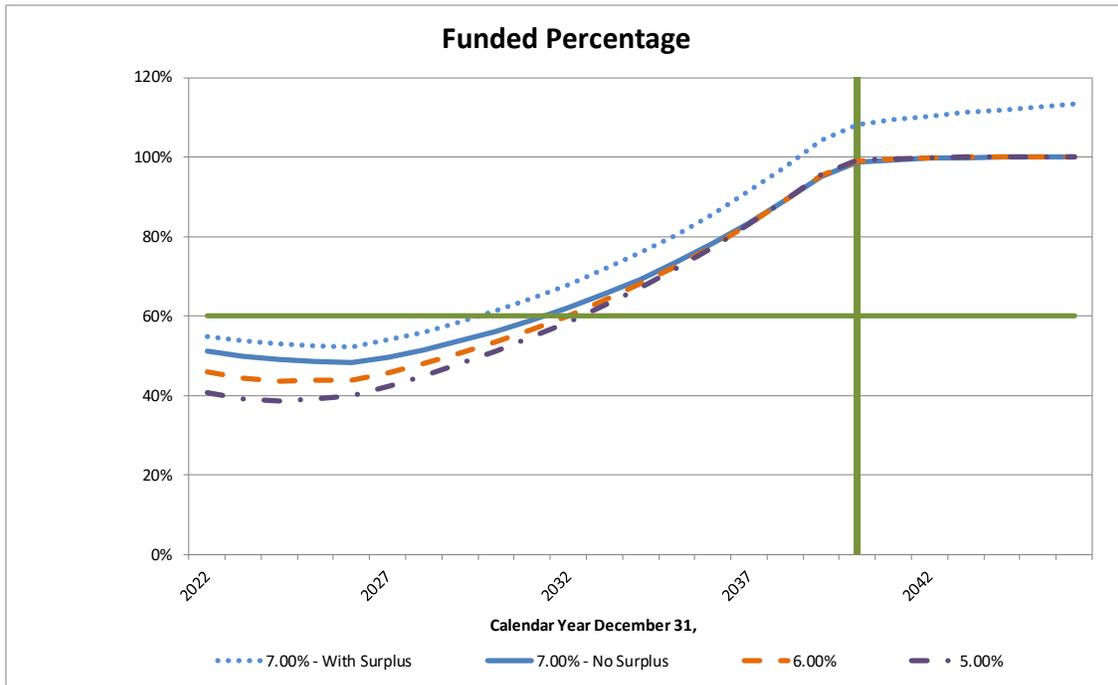
Your municipality includes one or more Surplus divisions. Extra contributions in a Surplus division may be used to reduce future employer contributions or to accelerate the date by which the municipality becomes 100% funded. The timing and use of these Surplus assets within the plan is discretionary. Certain employers have special funding arrangements that may differ from the Actuarial Policy.

The Funded Percentage graph shows projections of funded status under the 7.00% investment return assumption, both including the Surplus assets (contributed as of the valuation date), and without the Surplus assets. The graph including the Surplus assets assumes these Surplus assets grow with interest and are not used to lower future employer contributions. We modeled the projections including the Surplus assets in this fashion because the use of these assets within the plan is discretionary by the employer and we do not know when and how the employer will use them. Once the employer uses these Surplus assets, any future employer contributions are expected to be lower than those shown in the projections.

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	Actuarial Accrued Liability	Valuation Assets ²	Funded Percentage	Estimated Annual Employer Contribution ³
7.00%¹ - NO PHASE-IN					
2022	2024	\$ 57,458,072	\$ 29,380,627	51%	\$ 2,698,116
2023	2025	\$ 57,900,000	\$ 29,000,000	50%	\$ 2,890,000
2024	2026	\$ 58,500,000	\$ 28,700,000	49%	\$ 3,080,000
2025	2027	\$ 59,100,000	\$ 28,700,000	49%	\$ 3,280,000
2026	2028	\$ 59,700,000	\$ 28,800,000	48%	\$ 3,480,000
2027	2029	\$ 60,300,000	\$ 29,900,000	50%	\$ 3,600,000
6.00%¹ - NO PHASE-IN					
2022	2024	\$ 64,099,919	\$ 29,380,627	46%	\$ 3,248,676
2023	2025	\$ 64,600,000	\$ 28,700,000	44%	\$ 3,460,000
2024	2026	\$ 65,100,000	\$ 28,500,000	44%	\$ 3,670,000
2025	2027	\$ 65,800,000	\$ 28,800,000	44%	\$ 3,870,000
2026	2028	\$ 66,400,000	\$ 29,200,000	44%	\$ 4,080,000
2027	2029	\$ 66,900,000	\$ 30,600,000	46%	\$ 4,230,000
5.00%¹ - NO PHASE-IN					
2022	2024	\$ 72,131,656	\$ 29,380,627	41%	\$ 3,881,136
2023	2025	\$ 72,600,000	\$ 28,400,000	39%	\$ 4,120,000
2024	2026	\$ 73,200,000	\$ 28,300,000	39%	\$ 4,340,000
2025	2027	\$ 73,800,000	\$ 29,000,000	39%	\$ 4,550,000
2026	2028	\$ 74,400,000	\$ 29,800,000	40%	\$ 4,780,000
2027	2029	\$ 74,900,000	\$ 31,600,000	42%	\$ 4,940,000



- ¹ Represents both the interest rate for discounting liabilities and the future investment return assumption on the Market Value of assets.
- ² Valuation Assets do not include assets from Surplus divisions, if any.
- ³ All projected contributions are shown with no phase-in.

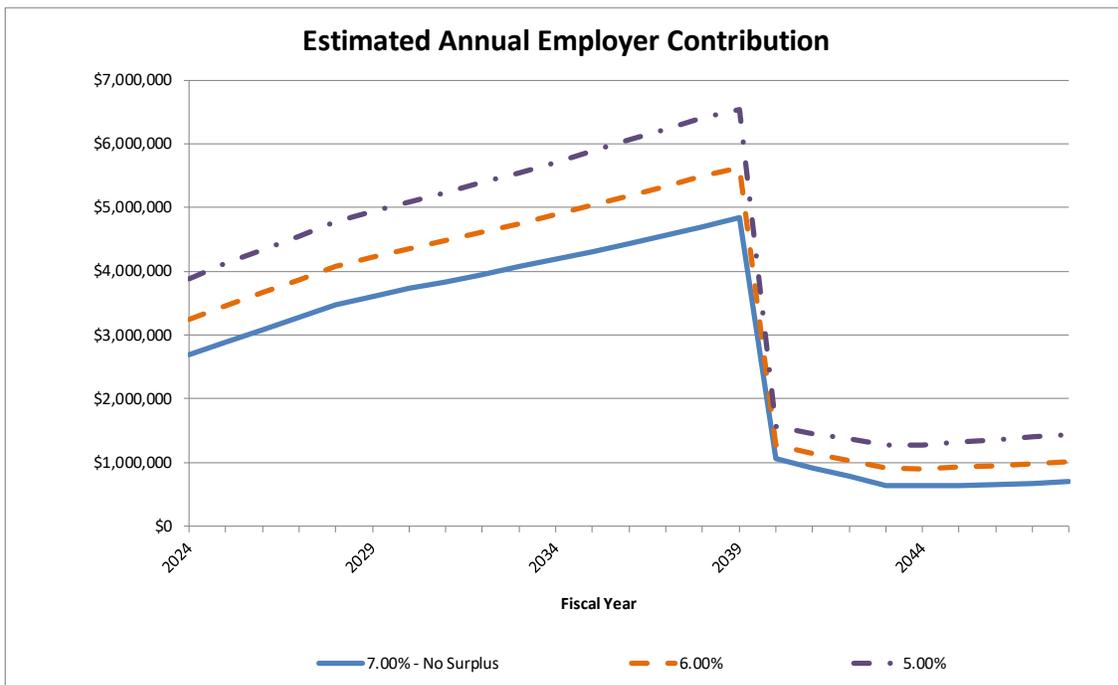


Notes:

All projected funded percentages are shown with no phase-in.

Assumes assets from the Surplus division(s) will not be used to lower employer contributions during the projection period.

The green indicator lines have been added at 60% funded and 18 years following the valuation date for PA 202 purposes.



Notes:

All projected contributions are shown with no phase-in.

Projected employer contributions do not reflect the use of any assets from the Surplus division(s).

Table 1: Employer Contribution Details for the Fiscal Year Beginning July 1, 2024

Division	Total Normal Cost	Employee Contribution Rate	Employer Contributions ¹			Computed Employer Contribution With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribution Conversion Factor ²
			Employer Normal Cost ⁶	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribution No Phase-In				
Percentage of Payroll									
02 - Plce FOP	13.58%	5.50%	-	-	-	-	68.57%	66.76%	
10 - Gnrl Non	9.94%	4.50%	-	-	-	-	37.29%	36.28%	
11 - Manager/Finance	0.00%	3.00%	-	-	-	-	29.33%	28.09%	
12 - Dispatch	11.27%	4.50%	-	-	-	-	15.53%	14.59%	
14 - General Non-union after 3/1/1	10.51%	4.50%	6.01%	0.61%	6.62%	6.62%	37.29%	36.28%	0.85%
15 - Dispatch after 3/1/2014	8.94%	4.50%	4.44%	-0.09%	4.35%	4.35%	15.53%	14.59%	0.72%
16 - Manager/Finance aft 3/1/14	9.55%	3.00%	6.55%	1.76%	8.31%	8.31%	29.33%	28.09%	0.88%
21 - Police FOP after 3/1/2014	13.09%	5.50%	7.59%	0.12%	7.71%	7.22%	68.57%	66.76%	0.92%
Estimated Monthly Contribution³									
02 - Plce FOP			\$ 10,651	\$ 145,212	\$ 155,863	\$ 152,064			
10 - Gnrl Non			2,619	43,740	46,359	44,934			
11 - Manager/Finance			0	3,487	3,487	3,282			
12 - Dispatch			902	2,072	2,974	2,772			
14 - General Non-union after 3/1/1			5,566	564	6,130	6,130			
15 - Dispatch after 3/1/2014			359	(7)	352	352			
16 - Manager/Finance aft 3/1/14			1,086	292	1,378	1,378			
21 - Police FOP after 3/1/2014			8,166	134	8,300	7,777			
Total Municipality			\$ 29,349	\$ 195,494	\$ 224,843	\$ 218,689			
Estimated Annual Contribution³			\$ 352,188	\$ 2,345,928	\$ 2,698,116	\$ 2,624,268			

- ¹ The above employer contribution requirements are in addition to the employee contributions, if any.
- ² If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1% because employee contributions may be refunded at termination of employment and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.
- ³ For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (i.e., closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the Appendix.
- ⁴ Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions not to add across.
- ⁵ For linked divisions, the employer will be invoiced the Computed Employer Contribution No Phase-in rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-MERS (6377).



⁶ For divisions with a negative employer normal cost, employee contributions cover the normal cost and a portion of the payment of any unfunded accrued liability.

Please see the Comments on Asset Smoothing in the Executive Summary of this report.

Table 2: Benefit Provisions

02 - Plce FOP: Closed to new hires, linked to Division 21

	2022 Valuation	2021 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Termination FAC; 2.25% Multiplier (80% max)	Bridged Benefit: 2.50% Multiplier (80% max)-Termination FAC; 2.25% Multiplier (80% max)
Bridged Benefit Date:	12/31/2017	12/31/2017
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.50%	5.50%
Act 88:	No	No

10 - Gnrl Non: Closed to new hires, linked to Division 14

	2022 Valuation	2021 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Termination FAC; 2.00% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max)-Termination FAC; 2.00% Multiplier (no max)
Bridged Benefit Date:	6/30/2017	6/30/2017
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.50%	4.50%
Act 88:	No	No

11 - Manager/Finance: Closed to new hires, linked to Division 16

	2022 Valuation	2021 Valuation
Benefit Multiplier:	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 2.00% Multiplier (no max)	Bridged Benefit: 2.50% Multiplier (80% max)-Frozen FAC; 2.00% Multiplier (no max)
Bridged Benefit Date:	6/30/2017	6/30/2017
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	20 & Out	20 & Out
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	3.00%	3.00%
Act 88:	No	No



12 - Dispatch: Closed to new hires, linked to Division 15

	2022 Valuation	2021 Valuation
Benefit Multiplier:	Bridged Benefit: 2.25% Multiplier (80% max)-Termination FAC; 2.00% Multiplier (80% max)	Bridged Benefit: 2.25% Multiplier (80% max)-Termination FAC; 2.00% Multiplier (80% max)
Bridged Benefit Date:	5/31/2018	5/31/2018
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.50%	4.50%
Act 88:	No	No

14 - General Non-union after 3/1/1: Open Division, linked to Division 10

	2022 Valuation	2021 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.50%	4.50%
Act 88:	No	No

15 - Dispatch after 3/1/2014: Open Division, linked to Division 12

	2022 Valuation	2021 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.50%	4.50%
Act 88:	No	No



16 - Manager/Finance aft 3/1/14: Open Division, linked to Division 11

	2022 Valuation	2021 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	3.00%	3.00%
Act 88:	No	No

21 - Police FOP after 3/1/2014: Open Division, linked to Division 02

	2022 Valuation	2021 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.50%	5.50%
Act 88:	No	No



Table 3: Participant Summary

Division	2022 Valuation		2021 Valuation		2022 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
02 - Plce FOP							
Active Employees	15	\$ 1,574,737	17	\$ 1,752,518	46.6	19.9	19.9
Vested Former Employees	2	59,408	2	59,408	56.3	14.9	14.9
Retirees and Beneficiaries	60	2,636,829	60	2,543,749	68.7		
Pending Refunds	1		2				
10 - GnrI Non							
Active Employees	10	\$ 636,025	14	\$ 868,122	47.6	16.8	16.8
Vested Former Employees	5	123,540	5	123,540	52.3	15.2	16.4
Retirees and Beneficiaries	40	1,010,802	38	911,685	70.9		
Pending Refunds	2		2				
11 - Manager/Finance							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	4	206,519	4	206,519	68.8		
Pending Refunds	0		0				
12 - Dispatch							
Active Employees	3	\$ 198,455	4	\$ 270,664	57.9	18.6	18.6
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	1	43,634	0	0	56.1		
Pending Refunds	1		1				
14 - General Non-union after 3/1/1							
Active Employees	16	\$ 932,563	16	\$ 910,866	38.6	4.5	4.7
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	3		2				
15 - Dispatch after 3/1/2014							
Active Employees	1	\$ 40,197	0	\$ 0	22.8	0.3	0.3
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
16 - Manager/Finance aft 3/1/14							
Active Employees	2	\$ 184,846	1	\$ 99,654	30.6	3.6	3.6
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				

Table 3 (continued)

Division	2022 Valuation		2021 Valuation		2022 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
21 - Police FOP after 3/1/2014							
Active Employees	12	\$ 1,093,310	15	\$ 1,246,399	36.0	4.0	4.2
Vested Former Employees	2	11,789	1	2,719	40.9	3.2	12.3
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	4		3				
Total Municipality							
Active Employees	59	\$ 4,660,133	67	\$ 5,148,223	42.1	11.0	11.1
Vested Former Employees	9	194,737	8	185,667	50.7	12.5	15.2
Retirees and Beneficiaries	105	3,897,784	102	3,661,953	69.4		
Pending Refunds	<u>11</u>		<u>10</u>				
Total Participants	184		187				

¹ Annual payroll for active employees; annual deferred benefits payable for vested former employees; annual benefits being paid for retirees and beneficiaries.

² Descriptions can be found under Miscellaneous and Technical Assumptions in the Appendix.

Table 4: Reported Assets (Market Value)

Division	2022 Valuation		2021 Valuation	
	Employer and Retiree ¹	Employee ²	Employer and Retiree ¹	Employee ²
02 - Plce FOP	\$ 13,143,798	\$ 1,721,210	\$ 15,851,104	\$ 1,686,084
10 - Gnrl Non	6,090,369	745,985	7,333,344	798,174
11 - Manager/Finance	1,558,999	0	1,935,064	0
12 - Dispatch	798,410	149,795	819,432	202,398
14 - General Non-union after 3/1/1	269,164	193,366	266,980	143,416
15 - Dispatch after 3/1/2014	465	522	0	0
16 - Manager/Finance aft 3/1/14	41,266	19,290	33,380	13,662
21 - Police FOP after 3/1/2014	354,619	291,956	351,053	240,952
S1 - Surplus Unassociated	1,830,468	0	2,047,252	0
Municipality Total³	\$ 24,087,558	\$ 3,122,123	\$ 28,637,610	\$ 3,084,686
Combined Assets³	\$27,209,681		\$31,722,296	

¹ Reserve for Employer Contributions and Benefit Payments.

² Reserve for Employee Contributions.

³ Totals may not add due to rounding.

The December 31, 2022 valuation assets (actuarial value of assets) are equal to 1.157665 times the reported market value of assets (compared to 0.998523 as of December 31, 2021). Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

Assets in the Surplus division(s) are employer assets that have been reserved separately and may be used within the plan at the employer's discretion at some point in the future. These assets are not used in calculating the employer contribution for the fiscal year beginning July 1, 2024.

Table 5: Flow of Valuation Assets

Year Ended 12/31	Employer Contributions		Employee Contributions	Investment Income (Valuation Assets)	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2012	\$ 783,713	\$ 0	\$ 238,502	\$ 1,022,264	\$ (2,283,234)	\$ (551)	\$ 0	\$ 25,097,374
2013	899,490	0	237,563	1,387,689	(2,430,073)	0	0	25,192,043
2014	1,094,749	0	255,055	1,389,200	(2,531,662)	(3,387)	0	25,395,998
2015	1,180,489	144,000	243,135	1,214,074	(2,567,732)	(27,318)	0	25,582,646
2016	1,308,821	144,000	248,209	1,265,207	(2,642,787)	0	0	25,906,096
2017	1,417,773	165,000	247,155	1,512,173	(2,784,639)	(9,766)	0	26,453,792
2018	1,502,609	412,196	250,331	971,111	(2,920,989)	(35,569)	0	26,633,481
2019	1,596,385	285,139	250,751	1,211,072	(3,244,937)	(7,878)	0	26,724,013
2020	1,762,108	630,276	250,451	2,070,867	(3,460,122)	0	0	27,977,593
2021	2,055,068	281,933	268,119	4,687,487	(3,588,888)	(5,869)	0	31,675,443
2022	2,251,244	0	271,765	1,011,861	(3,674,937)	(35,680)	0	31,499,696

Notes:

Transfers in and out are usually related to the transfer of participants between municipalities, and to employer and employee payments for service credit purchases (if any) that the governing body has approved.

The investment income column reflects the recognized investment income based on Valuation Assets. It does not reflect the market value investment return in any given year.

The Valuation Asset balance includes assets from Surplus divisions, if any.

Years where historical information is not available will be displayed with zero values.



**Table 6: Actuarial Accrued Liabilities and Valuation Assets
as of December 31, 2022**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
02 - Plice FOP	\$ 8,072,767	\$ 542,910	\$ 29,473,652	\$ 2,120	\$ 38,091,449	\$ 17,208,700	45.2%	\$ 20,882,749
10 - Gnrl Non	2,268,796	937,955	10,961,594	20,233	14,188,578	7,914,209	55.8%	6,274,369
11 - Manager/Finance	0	0	2,300,454	0	2,300,454	1,804,798	78.5%	495,656
12 - Dispatch	843,508	0	546,987	1,182	1,391,677	1,097,704	78.9%	293,973
14 - General Non-union after 3/1/1	603,153	0	0	8,794	611,947	535,454	87.5%	76,493
15 - Dispatch after 3/1/2014	344	0	0	0	344	1,143	332.3%	(799)
16 - Manager/Finance aft 3/1/14	106,339	0	0	0	106,339	70,103	65.9%	36,236
21 - Police FOP after 3/1/2014	691,106	41,674	0	34,504	767,284	748,516	97.6%	18,768
S1 - Surplus Unassociated	0	0	0	0	0	2,119,069		(2,119,069)
Total	\$ 12,586,013	\$ 1,522,539	\$ 43,282,687	\$ 66,833	\$ 57,458,072	\$ 31,499,696	54.8%	\$ 25,958,376

The following results show the combined accrued liabilities and assets for each set of linked divisions. These results are already shown in the table on the prior page(s).

Table 6 (continued)

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
Linked Divisions 14, 10	\$ 2,871,949	\$ 937,955	\$ 10,961,594	\$ 29,027	\$ 14,800,525	\$ 8,449,663	57.1%	\$ 6,350,862
Linked Divisions 15, 12	843,852	0	546,987	1,182	1,392,021	1,098,847	78.9%	293,174
Linked Divisions 16, 11	106,339	0	2,300,454	0	2,406,793	1,874,901	77.9%	531,892
Linked Divisions 21, 02	8,763,873	584,584	29,473,652	36,624	38,858,733	17,957,216	46.2%	20,901,517

Please see the Comments on Asset Smoothing in the Executive Summary of this report.

The December 31, 2022 valuation assets (actuarial value of assets) are equal to 1.157665 times the reported market value of assets. Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

Table 7: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 32,943,497	\$ 24,681,141	75%	\$ 8,262,356
2009	33,915,001	24,728,000	73%	9,187,001
2010	35,153,225	25,093,872	71%	10,059,353
2011	37,017,603	25,336,680	68%	11,680,923
2012	38,637,116	25,097,374	65%	13,539,742
2013	39,930,564	25,192,043	63%	14,738,521
2014	41,953,063	25,395,998	61%	16,557,065
2015	44,894,619	25,582,646	57%	19,311,973
2016	46,056,573	25,906,096	56%	20,150,477
2017	46,762,398	26,453,792	57%	20,308,606
2018	47,988,343	26,633,481	55%	21,354,862
2019	50,773,323	26,724,013	53%	24,049,310
2020	53,299,215	27,977,593	52%	25,321,622
2021	56,512,143	31,675,443	56%	24,836,700
2022	57,458,072	31,499,696	55%	25,958,376

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The Valuation Assets include assets from Surplus divisions, if any.

Years where historical information is not available will be displayed with zero values.

Throughout this report are references to valuation results generated prior to the 2018 valuation date. Results prior to 2018 were received directly from the prior actuary or extracted from the previous valuation system by MERS's technology service provider.

Tables 8 and 9: Division-Based Comparative Schedules

Division 02 - Plce FOP

Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 26,004,219	\$ 16,207,462	62%	\$ 9,796,757
2013	26,730,559	16,191,557	61%	10,539,002
2014	28,163,750	16,255,152	58%	11,908,598
2015	30,237,653	16,175,698	54%	14,061,955
2016	30,929,300	16,075,397	52%	14,853,903
2017	31,583,483	16,231,764	51%	15,351,719
2018	32,328,423	16,009,428	50%	16,318,995
2019	34,493,426	15,715,863	46%	18,777,563
2020	35,863,557	15,810,828	44%	20,052,729
2021	37,681,893	17,511,285	46%	20,170,608
2022	38,091,449	17,208,700	45%	20,882,749

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-02: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	34	\$ 2,843,156	27.61%	5.50%
2013	35	2,934,563	28.44%	5.50%
2014	32	2,883,968	\$ 79,620	5.50%
2015	30	2,606,089	\$ 95,880	5.50%
2016	29	2,526,011	\$ 101,010	5.50%
2017	28	2,524,833	\$ 103,123	5.50%
2018	25	2,403,701	\$ 111,118	5.50%
2019	20	1,943,046	\$ 131,526	5.50%
2020	19	1,889,347	\$ 144,192	5.50%
2021	17	1,752,518	\$ 145,388	5.50%
2022	15	1,574,737	\$ 155,863	5.50%

¹ For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

² For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 10 - Grnl Non

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 10,353,755	\$ 7,308,002	71%	\$ 3,045,753
2013	10,757,397	7,343,406	68%	3,413,991
2014	11,210,360	7,385,332	66%	3,825,028
2015	11,714,103	7,384,217	63%	4,329,886
2016	11,993,195	7,499,559	63%	4,493,636
2017	11,922,423	7,520,202	63%	4,402,221
2018	12,222,935	7,327,735	60%	4,895,200
2019	12,577,611	7,220,930	57%	5,356,681
2020	13,267,119	7,344,592	55%	5,922,527
2021	14,036,623	8,119,508	58%	5,917,115
2022	14,188,578	7,914,209	56%	6,274,369

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-10: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	25	\$ 1,394,871	19.75%	4.50%
2013	24	1,263,987	23.13%	4.50%
2014	26	1,465,115	\$ 27,979	4.50%
2015	26	1,383,055	\$ 32,076	4.50%
2016	22	1,197,646	\$ 32,707	4.50%
2017	21	1,111,103	\$ 30,322	4.50%
2018	18	1,013,036	\$ 34,050	4.50%
2019	16	932,608	\$ 38,165	4.50%
2020	14	809,752	\$ 42,541	4.50%
2021	14	868,122	\$ 42,750	4.50%
2022	10	636,025	\$ 46,359	4.50%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 11 - Manager/Finance

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 1,963,600	\$ 1,253,822	64%	\$ 709,778
2013	2,082,082	1,285,970	62%	796,112
2014	2,073,935	1,316,850	64%	757,085
2015	2,271,074	1,501,842	66%	769,232
2016	2,290,994	1,692,811	74%	598,183
2017	2,249,378	1,912,722	85%	336,656
2018	2,226,606	1,912,103	86%	314,503
2019	2,288,742	1,862,290	81%	426,452
2020	2,304,283	1,811,226	79%	493,057
2021	2,338,908	1,932,206	83%	406,702
2022	2,300,454	1,804,798	78%	495,656

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-11: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	1	\$ 144,246	38.72%	3.00%
2013	1	162,467	38.76%	3.00%
2014	1	150,332	\$ 4,618	3.00%
2015	1	145,774	\$ 4,850	3.00%
2016	1	143,736	\$ 3,806	3.00%
2017	1	143,919	\$ 2,139	3.00%
2018	1	148,333	\$ 2,218	3.00%
2019	0	0	\$ 2,825	3.00%
2020	0	0	\$ 3,338	3.00%
2021	0	0	\$ 2,638	3.00%
2022	0	0	\$ 3,487	3.00%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 12 - Dispatch

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 315,542	\$ 328,088	104%	\$ (12,546)
2013	360,526	371,110	103%	(10,584)
2014	485,522	416,795	86%	68,727
2015	619,209	462,883	75%	156,326
2016	723,532	518,526	72%	205,006
2017	790,883	586,323	74%	204,560
2018	873,851	649,314	74%	224,537
2019	961,355	725,650	75%	235,705
2020	1,108,520	832,708	75%	275,812
2021	1,260,871	1,020,321	81%	240,550
2022	1,391,677	1,097,704	79%	293,973

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-12: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	4	\$ 197,333	5.40%	4.50%
2013	4	195,626	5.56%	4.50%
2014	4	230,777	\$ 1,574	4.50%
2015	4	242,001	\$ 2,281	4.50%
2016	4	257,910	\$ 2,638	4.50%
2017	4	259,214	\$ 2,634	4.50%
2018	4	271,019	\$ 2,549	4.50%
2019	4	265,199	\$ 2,617	4.50%
2020	4	262,281	\$ 2,934	4.50%
2021	4	270,664	\$ 2,679	4.50%
2022	3	198,455	\$ 2,974	4.50%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 14 - General Non-union after 3/1/1

Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 0	0%	\$ 0
2013	0	0	0%	0
2014	7,798	7,451	96%	347
2015	18,970	17,855	94%	1,115
2016	50,247	46,862	93%	3,385
2017	94,413	89,215	95%	5,198
2018	145,888	132,510	91%	13,378
2019	182,762	172,354	94%	10,408
2020	281,500	265,188	94%	16,312
2021	454,825	409,790	90%	45,035
2022	611,947	535,454	88%	76,493

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-14: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	0	\$ 0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	3	127,869	4.73%	4.50%
2015	4	201,088	4.80%	4.50%
2016	8	413,521	4.82%	4.50%
2017	8	400,214	4.83%	4.50%
2018	9	473,844	5.28%	4.50%
2019	13	675,673	5.52%	4.50%
2020	16	824,567	5.42%	4.50%
2021	16	910,866	6.45%	4.50%
2022	16	932,563	6.62%	4.50%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 15 - Dispatch after 3/1/2014

Table 8-15: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 0	0%	\$ 0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	0	0	0%	0
2019	0	0	0%	0
2020	0	0	0%	0
2021	0	0	0%	0
2022	344	1,143	332%	(799)

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-15: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	0	\$ 0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	4.50%
2017	0	0	\$ 0	0.00%
2018	0	0	0.00%	4.50%
2019	0	0	0.00%	4.50%
2020	0	0	0.00%	4.50%
2021	0	0	0.00%	4.50%
2022	1	40,197	4.35%	4.50%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 16 - Manager/Finance aft 3/1/14

Table 8-16: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 0	0%	\$ 0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	0	0	0%	0
2019	32,259	20,050	62%	12,209
2020	54,230	31,031	57%	23,199
2021	81,940	46,973	57%	34,967
2022	106,339	70,103	66%	36,236

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-16: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	0	\$ 0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	3.00%
2017	0	0	\$ 0	0.00%
2018	0	0	0.00%	3.00%
2019	1	66,225	8.03%	3.00%
2020	1	90,000	8.04%	3.00%
2021	1	99,654	9.62%	3.00%
2022	2	184,846	8.31%	3.00%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division 21 - Police FOP after 3/1/2014

Table 8-21: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 0	0%	\$ 0
2013	0	0	0%	0
2014	11,698	14,418	123%	(2,720)
2015	33,610	40,151	120%	(6,541)
2016	69,305	72,941	105%	(3,636)
2017	121,818	113,566	93%	8,252
2018	190,640	164,837	86%	25,803
2019	237,168	251,179	106%	(14,011)
2020	420,006	387,058	92%	32,948
2021	657,083	591,131	90%	65,952
2022	767,284	748,516	98%	18,768

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

The percent funded does not reflect valuation assets from Surplus divisions, if any.

Table 9-21: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	0	\$ 0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	3	150,570	4.57%	5.50%
2015	3	178,949	4.63%	5.50%
2016	4	271,236	4.71%	5.50%
2017	5	361,857	4.84%	5.50%
2018	8	581,203	4.91%	5.50%
2019	12	836,660	5.56%	5.50%
2020	13	1,025,688	7.30%	5.50%
2021	15	1,246,399	7.89%	5.50%
2022	12	1,093,310	7.71%	5.50%

1 For open divisions, a percent of pay contribution is shown. For closed divisions, a monthly dollar contribution is shown.

2 For each valuation year, the computed employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the computed employer contribution will be adjusted.

Note: The contributions shown in Table 9 reflect the employer contribution requirement without phase-in. If applicable, the current phase-in contribution is shown in Table 1.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available will be displayed with zero values.

Division S1 - Surplus Unassociated

Table 8-S1: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 0		\$ 0
2013	0	0		0
2014	0	0		0
2015	0	0		0
2016	0	0		0
2017	0	0		0
2018	0	437,554		(437,554)
2019	0	755,697		(755,697)
2020	0	1,494,962		(1,494,962)
2021	0	2,044,229		(2,044,229)
2022	0	2,119,069		(2,119,069)

Notes: Actuarial assumptions were revised for the 2012, 2015, 2019, 2020 and 2021 actuarial valuations.

Years where historical information is not available will be displayed with zero values.

Table 10: Division-Based Layered Amortization Schedule

Division 02 - Plce FOP

Table 10-02: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 14,061,955	23	\$ 14,474,758	16	\$ 1,226,088
(Gain)/Loss	12/31/2016	430,706	22	473,846	16	40,140
(Gain)/Loss	12/31/2017	409,791	21	447,853	16	37,932
Amendment	12/31/2017	(162,967)	21	(178,088)	16	(15,084)
(Gain)/Loss	12/31/2018	806,001	20	876,866	16	74,280
(Gain)/Loss	12/31/2019	1,213,164	19	1,309,685	16	110,940
Assumption	12/31/2019	1,093,163	19	1,078,283	16	91,332
Experience	12/31/2020	1,083,650	18	1,177,424	16	99,732
Experience	12/31/2021	(68,658)	17	(74,930)	16	(6,348)
Experience	12/31/2022	890,930	16	986,096	16	83,532
Total				\$ 20,571,793		\$ 1,742,544

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 10 - Gnrl Non

Table 10-10: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 4,329,886	23	\$ 4,451,970	16	\$ 377,112
(Gain)/Loss	12/31/2016	50,534	22	55,603	16	4,716
(Gain)/Loss	12/31/2017	(55,491)	21	(60,620)	16	(5,136)
Amendment	12/31/2017	(100,014)	21	(109,301)	16	(9,264)
(Gain)/Loss	12/31/2018	465,184	20	506,092	16	42,864
(Gain)/Loss	12/31/2019	(14,336)	19	(15,464)	16	(1,308)
Assumption	12/31/2019	420,570	19	425,675	16	36,060
Experience	12/31/2020	520,649	18	565,703	16	47,916
Experience	12/31/2021	(65,309)	17	(71,274)	16	(6,036)
Experience	12/31/2022	404,831	16	448,074	16	37,956
Total				\$ 6,196,458		\$ 524,880

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 11 - Manager/Finance

Table 10-11: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 769,232	23	\$ 779,593	16	\$ 66,036
(Gain)/Loss	12/31/2016	(179,858)	22	(197,881)	16	(16,764)
(Gain)/Loss	12/31/2017	(217,732)	21	(237,935)	16	(20,160)
Amendment	12/31/2017	(40,696)	21	(44,469)	16	(3,768)
(Gain)/Loss	12/31/2018	(383)	20	(403)	16	(36)
(Gain)/Loss	12/31/2019	44,979	19	48,550	16	4,116
Assumption	12/31/2019	75,142	19	79,095	16	6,696
Experience	12/31/2020	57,957	18	62,973	16	5,340
Experience	12/31/2021	(95,917)	17	(104,692)	16	(8,868)
Experience	12/31/2022	98,688	16	109,229	16	9,252
Total				\$ 494,060		\$ 41,844

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 12 - Dispatch

Table 10-12: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 156,326	23	\$ 173,265	16	\$ 14,676
(Gain)/Loss	12/31/2016	35,977	22	39,583	16	3,348
(Gain)/Loss	12/31/2017	(9,451)	21	(10,328)	16	(876)
(Gain)/Loss	12/31/2018	36,964	20	40,217	16	3,408
Amendment	12/31/2018	(19,343)	20	(21,044)	16	(1,788)
(Gain)/Loss	12/31/2019	(20,231)	19	(21,831)	16	(1,848)
Assumption	12/31/2019	29,113	19	30,259	16	2,568
Experience	12/31/2020	38,889	18	42,251	16	3,576
Experience	12/31/2021	(38,799)	17	(42,349)	16	(3,588)
Experience	12/31/2022	57,525	16	63,670	16	5,388
Total				\$ 293,693		\$ 24,864

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 14 - General Non-union after 3/1/1

Table 10-14: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,115	23	\$ 1,509	16	\$ 132
(Gain)/Loss	12/31/2016	2,047	22	2,254	16	192
(Gain)/Loss	12/31/2017	1,476	21	1,604	16	132
(Gain)/Loss	12/31/2018	7,959	20	8,666	16	732
(Gain)/Loss	12/31/2019	(4,412)	19	(4,758)	16	(408)
Assumption	12/31/2019	722	19	719	16	60
Experience	12/31/2020	5,879	18	6,379	16	540
Experience	12/31/2021	28,400	17	31,002	16	2,628
Experience	12/31/2022	29,408	16	32,549	16	2,760
Total				\$ 79,924		\$ 6,768

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 15 - Dispatch after 3/1/2014

Table 10-15: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2022	\$ (799)	15	\$ (884)	15	\$ (84)
Total				\$ (884)		\$ (84)

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 16 - Manager/Finance aft 3/1/14

Table 10-16: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ 12,373	15	\$ 12,719	12	\$ 1,344
Assumption	12/31/2019	(95)	15	(172)	12	(24)
Experience	12/31/2020	10,092	15	10,695	13	1,056
Experience	12/31/2021	10,580	15	11,450	14	1,068
Experience	12/31/2022	636	15	704	15	60
Total				\$ 35,396		\$ 3,504

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

Division 21 - Police FOP after 3/1/2014

Table 10-21: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 7/1/2024		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2020	\$ 31,693	15	\$ 33,599	13	\$ 3,324
Experience	12/31/2021	31,767	15	34,393	14	3,216
Experience	12/31/2022	(50,171)	15	(55,530)	15	(4,932)
Total				\$ 12,462		\$ 1,608

¹ For each type of UAL (layer), this is the original balance as of the date the layer was established.

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see Appendix on MERS website).

³ This is the remaining balance as of the valuation date, projected to the beginning of the fiscal year shown above.

The unfunded accrued liability (UAL) as of December 31, 2022 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2022 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

Note: The original balance and original amortization periods prior to 12/31/2018 were received from the prior actuary.

GASB Statement No. 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. GASB Statement No. 68 is effective for fiscal years beginning after June 15, 2014. Additional resources, including an Implementation Guide, are available at <http://www.mersofmich.com/>.

Actuarial Valuation Date:		12/31/2022
Measurement Date of the Total Pension Liability (TPL):		12/31/2022
At 12/31/2022, the following employees were covered by the benefit terms:		
Inactive employees or beneficiaries currently receiving benefits:		105
Inactive employees entitled to but not yet receiving benefits (including refunds):		20
Active employees:		<u>59</u>
		184
Total Pension Liability as of 12/31/2021 measurement date:	\$	54,904,267
Total Pension Liability as of 12/31/2022 measurement date:	\$	55,863,785
Service Cost for the year ending on the 12/31/2022 measurement date:	\$	548,970
Change in the Total Pension Liability due to:		
- Benefit changes ¹ :	\$	0
- Differences between expected and actual experience ² :	\$	258,675
- Changes in assumptions ² :	\$	(3,459)
Average expected remaining service lives of all employees (active and inactive):		3

¹ A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

² Changes in liability due to differences between actual and expected experience, and changes in assumptions, are recognized in pension expense over the average remaining service lives of all employees.

Covered employee payroll (Needed for Required Supplementary Information):	\$	4,660,133
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Note: Covered employee payroll may differ from the GASB Statement No. 68 definition.

Sensitivity of the Net Pension Liability to changes in the discount rate:

	1% Decrease <u>(6.25%)</u>	Current Discount Rate <u>(7.25%)</u>	1% Increase <u>(8.25%)</u>
Change in Net Pension Liability as of 12/31/2022:	\$ 6,304,093	\$ 0	\$ (5,284,283)

Note: The current discount rate shown for GASB Statement No. 68 purposes is higher than the MERS assumed rate of return. This is because for GASB Statement No. 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

Benefit Provision History

The following benefit provision history is provided by MERS. Any corrections to this history or discrepancies between this information and information displayed elsewhere in the valuation report should be reported to MERS. All provisions are listed by date of adoption.

02 - Plce FOP

1/1/2021	Public Safety Employees - Yes
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
7/1/2019	Non Standard Compensation Definition
1/1/2018	Benefit B-3 (80% max)
12/31/2017	Current FAC
12/1/2016	Service Credit Purchase Estimates - No
7/1/2006	Member Contribution Rate 5.50%
7/1/2002	Member Contribution Rate 5.00%
7/1/1992	Benefit B-4 (80% max)
7/1/1992	Benefit F50 (With 25 Years of Service)
7/1/1992	Member Contribution Rate 6.00%
6/30/1992	Member Contribution Rate 0.00%
1/1/1991	Temporary Benefit RS 50 (50% Post-Ret. Spouse Benefits) (01/01/1991 - 10/03/1991)
7/1/1987	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/1987	Benefit B-3 (80% max)
7/1/1987	Benefit F55 (With 25 Years of Service)
7/1/1977	Benefit B-2 (No Max)
7/1/1967	Benefit B-1 (No Max)
1/1/1946	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1946	10 Year Vesting
1/1/1946	Benefit B (No Max)
1/1/1946	Member Contribution Rate 5.00%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

10 - Gnrl Non

1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
7/1/2017	Non Standard Compensation Definition
7/1/2017	Benefit B-2 (No Max)
6/30/2017	Current FAC
12/1/2016	Service Credit Purchase Estimates - No
7/1/2006	Benefit B-4 (80% max)
7/1/2004	Temporary Benefit B-4 (80% max) (07/01/2004 - 09/03/2004)
12/1/2000	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (12/01/2000 - 01/03/2001)
7/1/1999	Benefit B-3 (80% max)
7/1/1999	Member Contribution Rate 4.50%
1/1/1997	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (01/01/1997 - 03/03/1997)



10 - Gnrl Non

1/1/1997	Temporary Benefit B-3 (80% max) (01/01/1997 - 03/03/1997)
7/1/1994	Member Contribution Rate 4.00%
11/1/1993	Temporary Benefit B-3 (80% max) (11/01/1993 - 02/01/1994)
7/1/1993	Member Contribution Rate 5.00%
7/1/1991	Temporary Benefit RS 50 (50% Post-Ret. Spouse Benefits) (07/01/1991 - 10/03/1991)
9/1/1987	Benefit B-2 (No Max)
9/1/1987	Benefit F55 (With 25 Years of Service)
9/1/1987	Member Contribution Rate 6.00%
7/1/1967	Benefit C-1 (Old) (No Max)
1/1/1946	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1946	10 Year Vesting
1/1/1946	Benefit C (Old) (No Max)
1/1/1946	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

11 - Manager/Finance

7/1/2017	Non Standard Compensation Definition
7/1/2017	Benefit B-2 (No Max)
6/30/2017	Frozen FAC
12/1/2016	Service Credit Purchase Estimates - No
1/1/2003	20 Years & Out
1/1/2003	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2003	Benefit B-4 (80% max)
1/1/2001	Benefit B-3 (80% max)
7/1/1992	Member Contribution Rate 3.00%
6/30/1992	Member Contribution Rate 0.00%
7/1/1991	Temporary Benefit RS 50 (50% Post-Ret. Spouse Benefits) (07/01/1991 - 10/03/1991)
4/1/1988	Benefit FAC-5 (5 Year Final Average Compensation)
4/1/1988	10 Year Vesting
4/1/1988	Benefit B-2 (No Max)
4/1/1988	Benefit F55 (With 20 Years of Service)
4/1/1988	Member Contribution Rate 6.00%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

12 - Dispatch

1/1/2021	Public Safety Employees - Yes
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
6/1/2018	Non Standard Compensation Definition
6/1/2018	2.0% multiplier (80% max)
5/31/2018	Current FAC
12/1/2016	Service Credit Purchase Estimates - No
9/1/2003	Benefit B-3 (80% max)
9/1/2003	Member Contribution Rate 4.50%



12 - Dispatch

7/1/1999	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1999	10 Year Vesting
7/1/1999	Benefit B-2 (No Max)
7/1/1999	Benefit F55 (With 25 Years of Service)
7/1/1999	Member Contribution Rate 4.00%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

14 - General Non-union after 3/1/1

1/1/2021	Appointed Officials - Included
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
7/1/2017	Non Standard Compensation Definition
12/1/2016	Service Credit Purchase Estimates - No
3/1/2014	Day of work defined as 8 Hours a Day for All employees.
3/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
3/1/2014	10 Year Vesting
3/1/2014	Benefit B-2 (No Max)
3/1/2014	Benefit F55 (With 25 Years of Service)
3/1/2014	Member Contribution Rate 4.50%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

15 - Dispatch after 3/1/2014

1/1/2021	Public Safety Employees - Yes
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
6/1/2018	Non Standard Compensation Definition
12/1/2016	Service Credit Purchase Estimates - No
3/1/2014	Day of work defined as 12 Hours a Day for All employees.
3/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
3/1/2014	10 Year Vesting
3/1/2014	Benefit B-2 (No Max)
3/1/2014	Benefit F55 (With 25 Years of Service)
3/1/2014	Member Contribution Rate 4.50%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

16 - Manager/Finance aft 3/1/14

1/1/2021	Appointed Officials - Included
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
7/1/2017	Non Standard Compensation Definition



16 - Manager/Finance aft 3/1/14

12/1/2016	Service Credit Purchase Estimates - No
3/1/2014	Day of work defined as 8 Hours a Day for All employees.
3/1/2014	Benefit FAC-3 (3 Year Final Average Compensation)
3/1/2014	10 Year Vesting
3/1/2014	Benefit B-2 (No Max)
3/1/2014	Benefit F50 (With 25 Years of Service)
3/1/2014	Member Contribution Rate 3.00%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

21 - Police FOP after 3/1/2014

1/1/2021	Public Safety Employees - Yes
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
7/1/2019	Non Standard Compensation Definition
12/1/2016	Service Credit Purchase Estimates - No
3/1/2014	Day of work defined as 12 Hours a Day for All employees.
3/1/2014	Benefit FAC-3 (3 Year Final Average Compensation)
3/1/2014	10 Year Vesting
3/1/2014	Benefit B-2 (No Max)
3/1/2014	Benefit F50 (With 25 Years of Service)
3/1/2014	Member Contribution Rate 5.50%
	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

S1 - Surplus Unassociated

Fiscal Month - July

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

Details on MERS plan provisions, actuarial assumptions, and actuarial methodology can be found in the Appendix. Some actuarial assumptions are specific to this municipality and its divisions. These are listed below.

Increase in Final Average Compensation

Division	FAC Increase Assumption
02 - Plce FOP	4.00%
10 - Gnrl Non	4.00%
11 - Manager/Finance	4.00%
12 - Dispatch	4.00%
14 - General Non-union after 3/1/1	4.00%
15 - Dispatch after 3/1/2014	4.00%
16 - Manager/Finance aft 3/1/14	0.00%
21 - Police FOP after 3/1/2014	4.00%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Not Linked Divisions: The default funding policy for closed not linked divisions, including open divisions with zero active members, is to follow a non-accelerated amortization, where each closed period decreases by one year each year until the period is exhausted. In select instances, closed not linked division(s) may follow an accelerated amortization policy.

Risk Commentary

Determination of the accrued liability, the employer contribution, and the funded ratio 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, the actuarially determined contribution and the funded ratio 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;
- **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.

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>12/31/2022</u>	<u>12/31/2021</u>	<u>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
1. Ratio of the market value of assets to total payroll	5.8	6.2	5.9	5.6	5.0
2. Ratio of actuarial accrued liability to payroll	12.3	11.0	10.9	10.8	9.8
3. Ratio of actives to retirees and beneficiaries	0.6	0.7	0.7	0.7	0.7
4. Ratio of market value of assets to benefit payments	7.3	8.8	8.3	8.1	8.2
5. Ratio of net cash flow to market value of assets (boy)	-3.7%	-3.4%	-3.1%	-4.6%	-3.0%

RATIO OF MARKET VALUE OF ASSETS TO TOTAL 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.

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 MARKET VALUE OF ASSETS TO BENEFIT PAYMENTS

The MERS' Actuarial Policy requires a total minimum contribution equal to the excess (if any) of three times the expected annual benefit payments over the projected market value of assets as of the participating municipality or court's Fiscal Year for which the contribution applies. The ratio of market value of assets to benefit payments as of the valuation date provides an indication of whether the division is at risk for triggering the minimum contribution rule in the near term. If the division triggers this minimum contribution rule, the required employer contributions could increase dramatically relative to previous valuations.

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.

State Reporting

The following information has been prepared to provide some of the information necessary to complete the Public Act 202 pension reporting requirements for the State of Michigan’s Local Government Retirement System Annual Report (Form No. 5572). Additional resources are available at www.mersofmich.com and on the State [website](#).

Form 5572		
Line Reference	Description	Result
10	Membership as of December 31, 2022	
11	Indicate number of active members	59
12	Indicate number of inactive members (excluding pending refunds)	9
13	Indicate number of retirees and beneficiaries	105
14	Investment Performance for Calendar Year Ending December 31, 2022¹	
15	Enter actual rate of return - prior 1-year period	(10.37)%
16	Enter actual rate of return - prior 5-year period	4.95%
17	Enter actual rate of return - prior 10-year period	6.79%
18	Actuarial Assumptions	
19	Actuarial assumed rate of investment return ²	7.00%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any ³	16
22	Is each division within the system closed to new employees? ⁴	No
23	Uniform Assumptions	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$29,392,741
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions ⁵	\$58,378,660
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending June 30, 2023	\$2,858,448

1. The Municipal Employees’ Retirement System’s investment performance has been provided to GRS from MERS Investment Staff and is included here for reporting purposes. The investment performance figures reported are net of investment expenses on a rolling calendar year basis for the previous 1-, 5-, and 10-year periods as required under PA 530.
2. Net of administrative and investment expenses.
3. Populated with the longest amortization period remaining in the amortization schedule, across all divisions in the plan. This is when each division and the plan in total is expected to reach 100% funded if all assumptions are met.
4. If all divisions within the employer are closed, “yes.” If at least one division is open (including shadow divisions), “no.”
5. Line 25 actuarial accrued liability is determined under PA 202 uniform assumptions which differ from the valuation assumptions. In particular, the assumed rate of return for PA 202 purposes is 6.85%.

