



# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report  
December 31, 2022 - Meridian Chtr Twp (3315)





Spring 2023

Meridian Chtr Twp

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 Meridian Chtr Twp (3315) 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. Meridian Chtr Twp 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 January 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 Meridian Chtr Twp 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.



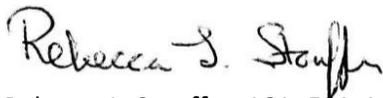
The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

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

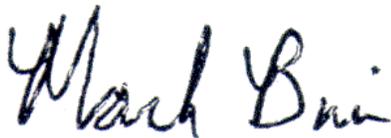
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible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

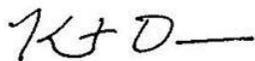
Sincerely,  
Gabriel, Roeder, Smith & Company



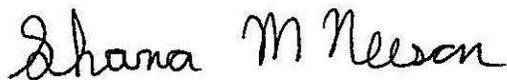
Rebecca L. Stouffer, ASA, FCA, MAAA



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# 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*	74%	72%

\* 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
	Valuation Date: 12/31/2022	12/31/2022	12/31/2021	12/31/2021	12/31/2022	12/31/2022	12/31/2021	12/31/2021
Fiscal Year Beginning:	January 1, 2024	January 1, 2024	January 1, 2023	January 1, 2023	January 1, 2024	January 1, 2024	January 1, 2023	January 1, 2023
<b>Division</b>								
01 - DPW	-	-	-	-	\$ 14,055	\$ 14,491	\$ 11,546	\$ 12,418
02 - Police Patrol	-	-	-	-	40,254	42,197	34,264	38,150
05 - Firefighters	-	-	-	-	139,923	143,951	125,654	133,710
10 - Admin Professional	-	-	-	-	9,066	9,728	6,747	8,071
11 - Teamsters	-	-	-	-	1,994	2,116	1,202	1,446
12 - Admin Prof on/aft 1/1/17	3.26%	3.29%	2.93%	2.99%	1,163	1,172	884	902
13 - DPW on/aft 01/1/17	4.49%	4.52%	3.98%	4.05%	2,031	2,043	1,468	1,492
20 - Police Command	-	-	-	-	65,670	67,535	58,499	62,229
21 - Command/Patrol on/aft 1/1/20	2.32%	2.32%	1.89%	1.89%	1,285	1,285	631	631
50 - Fire on/aft 1/1/17	3.71%	3.79%	3.68%	3.90%	2,854	2,917	2,121	2,247
<b>Total Municipality - Estimated Monthly Contribution</b>					<b>\$ 278,295</b>	<b>\$ 287,435</b>	<b>\$ 243,016</b>	<b>\$ 261,296</b>
<b>Total Municipality - Estimated Annual Contribution</b>					<b>\$ 3,339,540</b>	<b>\$ 3,449,220</b>	<b>\$ 2,916,192</b>	<b>\$ 3,135,552</b>

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2022	12/31/2021
<b>Division</b>		
01 - DPW	5.00%	5.00%
02 - Police Patrol	8.29%	8.29%
05 - Firefighters	7.76%	7.76%
10 - Admin Professional	5.00%	5.00%
11 - Teamsters	5.00%	5.00%
12 - Admin Prof on/aft 1/1/17	5.00%	5.00%
13 - DPW on/aft 01/1/17	5.00%	5.00%
20 - Police Command	11.24%	11.24%
21 - Command/Patrol on/aft 1/1/20	8.29%	8.29%
50 - Fire on/aft 1/1/17	7.76%	7.76%

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 \$391,964, instead of \$287,435.

### **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 64% (instead of 74%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2024 would be \$4,112,904 (instead of \$3,449,220).



## 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	\$ 113,376,880	\$ 99,165,972	\$ 87,580,156
Valuation Assets <sup>1</sup>	\$ 64,528,517	\$ 64,528,517	\$ 64,528,517
Unfunded Accrued Liability	\$ 48,848,363	\$ 34,637,455	\$ 23,051,639
<b>Funded Ratio</b>	57%	65%	74%
Monthly Normal Cost	\$ 114,511	\$ 77,391	\$ 50,197
Monthly Amortization Payment	\$ 368,808	\$ 300,416	\$ 237,238
<b>Total Employer Contribution<sup>2</sup></b>	\$ 483,319	\$ 377,807	\$ 287,435

<sup>1</sup> The Valuation Assets include assets from Surplus divisions, if any.

<sup>2</sup> 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.

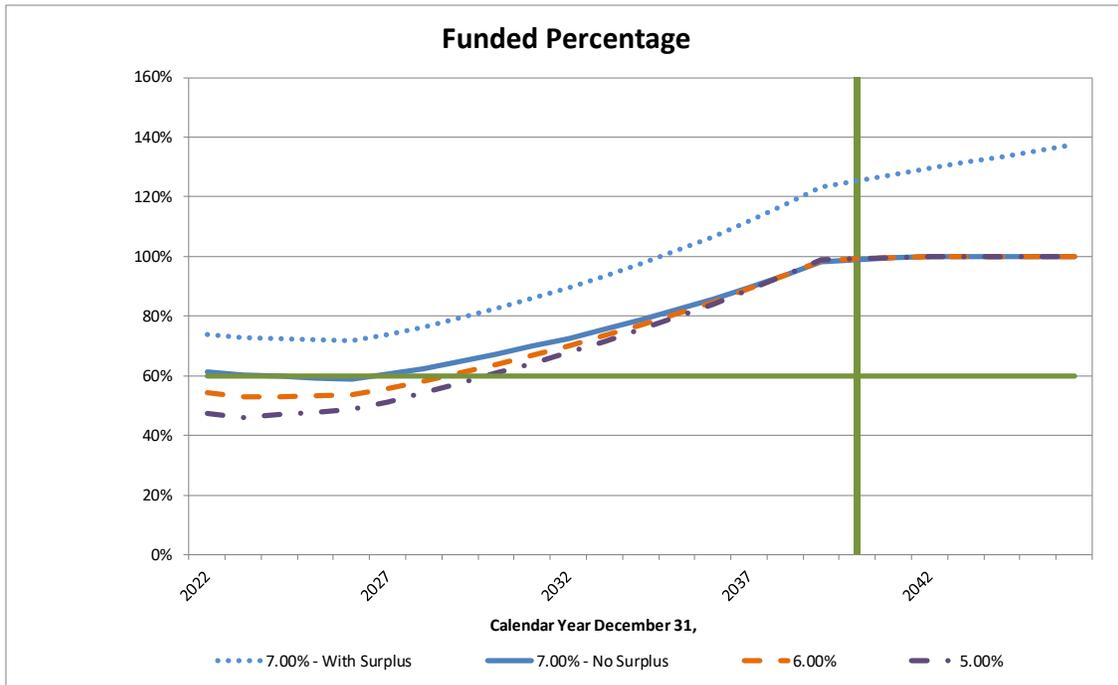
The Funded Percentage graph shows projections of funded status under the 7.00% investment return assumption, both including the Surplus assets (contributed as of the valuation date), and without the Surplus assets. The graph including the Surplus assets assumes these Surplus assets grow with interest 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 1/1	Actuarial Accrued Liability	Valuation Assets <sup>2</sup>	Funded Percentage	Estimated Annual Employer Contribution <sup>3</sup>
<b>7.00%<sup>1</sup> - NO PHASE-IN</b>					
2022	2024	\$ 87,580,156	\$ 53,723,261	61%	\$ 3,449,220
2023	2025	\$ 89,800,000	\$ 54,300,000	60%	\$ 3,710,000
2024	2026	\$ 92,300,000	\$ 55,100,000	60%	\$ 3,990,000
2025	2027	\$ 94,600,000	\$ 56,100,000	59%	\$ 4,290,000
2026	2028	\$ 96,900,000	\$ 57,100,000	59%	\$ 4,590,000
2027	2029	\$ 99,200,000	\$ 60,100,000	61%	\$ 4,730,000
<b>6.00%<sup>1</sup> - NO PHASE-IN</b>					
2022	2024	\$ 99,165,972	\$ 53,723,261	54%	\$ 4,533,684
2023	2025	\$ 101,600,000	\$ 53,700,000	53%	\$ 4,840,000
2024	2026	\$ 104,200,000	\$ 55,300,000	53%	\$ 5,120,000
2025	2027	\$ 106,700,000	\$ 56,900,000	53%	\$ 5,420,000
2026	2028	\$ 109,200,000	\$ 58,600,000	54%	\$ 5,740,000
2027	2029	\$ 111,600,000	\$ 62,000,000	56%	\$ 5,920,000
<b>5.00%<sup>1</sup> - NO PHASE-IN</b>					
2022	2024	\$ 113,376,880	\$ 53,723,261	47%	\$ 5,799,828
2023	2025	\$ 116,000,000	\$ 53,200,000	46%	\$ 6,150,000
2024	2026	\$ 118,800,000	\$ 55,700,000	47%	\$ 6,430,000
2025	2027	\$ 121,500,000	\$ 58,100,000	48%	\$ 6,750,000
2026	2028	\$ 124,100,000	\$ 60,600,000	49%	\$ 7,080,000
2027	2029	\$ 126,600,000	\$ 65,000,000	51%	\$ 7,280,000

<sup>1</sup> Represents both the interest rate for discounting liabilities and the future investment return assumption on the Market Value of assets.

<sup>2</sup> Valuation Assets do not include assets from Surplus divisions, if any.

<sup>3</sup> All projected contributions are shown with no phase-in.

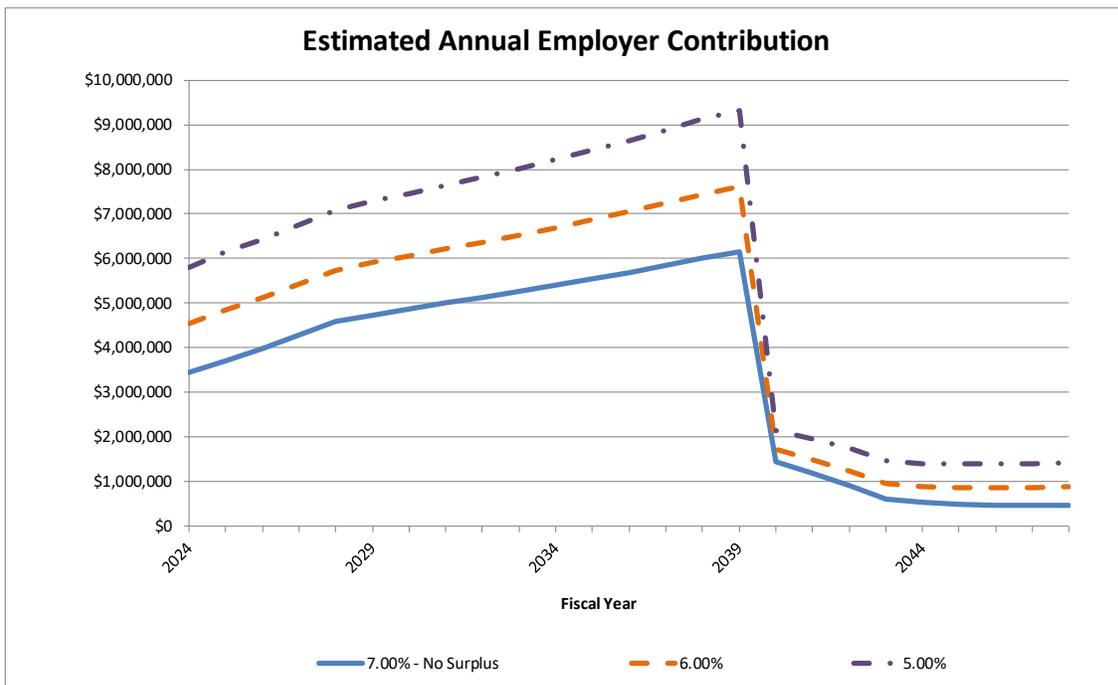


**Notes:**

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 January 1, 2024

Division	Total Normal Cost	Employee Contribution Rate	Employer Contributions <sup>1</sup>			Computed Employer Contribution With Phase-In	Blended ER Rate No Phase-In <sup>5</sup>	Blended ER Rate With Phase-In <sup>5</sup>	Employee Contribution Conversion Factor <sup>2</sup>
			Employer Normal Cost <sup>6</sup>	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribution No Phase-In				
<b>Percentage of Payroll</b>									
01 - DPW	12.01%	5.00%	-	-	-	-	16.39%	15.95%	
02 - Police Patrol	22.23%	8.29%	-	-	-	-	47.80%	46.16%	
05 - Firefighters	19.28%	7.76%	-	-	-	-	69.99%	68.04%	
10 - Admin Professional	11.26%	5.00%	-	-	-	-	16.97%	15.93%	
11 - Teamsters	0.00%	5.00%	-	-	-	-			
12 - Admin Prof on/aft 1/1/17	8.65%	5.00%	3.65%	-0.36%	3.29%	3.26%	16.97%	15.93%	0.82%
13 - DPW on/aft 01/1/17	9.07%	5.00%	4.07%	0.45%	4.52%	4.49%	16.39%	15.95%	0.89%
20 - Police Command	21.50%	11.24%	-	-	-	-	47.80%	46.16%	
21 - Command/Patrol on/aft 1/1/20	10.59%	8.29%	2.30%	0.02%	2.32%	2.32%	47.80%	46.16%	0.81%
50 - Fire on/aft 1/1/17	11.33%	7.76%	3.57%	0.22%	3.79%	3.71%	69.99%	68.04%	0.87%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
01 - DPW			\$ 3,904	\$ 10,587	\$ 14,491	\$ 14,055			
02 - Police Patrol			14,775	27,422	42,197	40,254			
05 - Firefighters			15,304	128,647	143,951	139,923			
10 - Admin Professional			1,787	7,941	9,728	9,066			
11 - Teamsters			0	2,116	2,116	1,994			
12 - Admin Prof on/aft 1/1/17			1,302	(130)	1,172	1,163			
13 - DPW on/aft 01/1/17			1,838	205	2,043	2,031			
20 - Police Command			7,262	60,273	67,535	65,670			
21 - Command/Patrol on/aft 1/1/20			1,276	9	1,285	1,285			
50 - Fire on/aft 1/1/17			2,749	168	2,917	2,854			
<b>Total Municipality</b>			<b>\$ 50,197</b>	<b>\$ 237,238</b>	<b>\$ 287,435</b>	<b>\$ 278,295</b>			
<b>Estimated Annual Contribution<sup>3</sup></b>			<b>\$ 602,364</b>	<b>\$ 2,846,856</b>	<b>\$ 3,449,220</b>	<b>\$ 3,339,540</b>			

- <sup>1</sup> The above employer contribution requirements are in addition to the employee contributions, if any.
- <sup>2</sup> 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.
- <sup>3</sup> 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.
- <sup>4</sup> 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.

<sup>5</sup> 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).

<sup>6</sup> 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

### 01 - DPW: Closed to new hires, linked to Division 13

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/20	55/20
<b>Early Retirement (Reduced):</b>	50/25	50/25
	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	5.00%	5.00%
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

### 02 - Police Patrol: Closed to new hires, linked to Division 21

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	2.75% Multiplier (80% max)	2.75% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>COLA for Future Retirees:</b>	2.50% (Non-Compound)	2.50% (Non-Compound)
<b>Employee Contributions:</b>	8.29%	8.29%
<b>D-2:</b>	D2 (25%)	D2 (25%)
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

### 05 - Firefighters: Closed to new hires, linked to Division 50

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	Bridged Benefit: 2.75% Multiplier (80% max)-Termination FAC; 2.50% Multiplier (80% max)	Bridged Benefit: 2.75% Multiplier (80% max)-Termination FAC; 2.50% Multiplier (80% max)
<b>Bridged Benefit Date:</b>	12/31/2016	12/31/2016
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>COLA for Future Retirees:</b>	2.50% (Non-Compound)	2.50% (Non-Compound)
<b>Employee Contributions:</b>	7.76%	7.76%
<b>D-2:</b>	D2 (25%)	D2 (25%)
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

**10 - Admin Professional: Closed to new hires, linked to Division 12**

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	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)
<b>Bridged Benefit Date:</b>	12/31/2016	12/31/2016
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	5.00%	5.00%
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

**11 - Teamsters: Open Division**

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	2.00% Multiplier (no max)	2.00% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/20	55/20
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	5.00%	5.00%
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

**12 - Admin Prof on/aft 1/1/17: Open Division, linked to Division 10**

	2022 Valuation	2021 Valuation
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	1.50% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	5.00%	5.00%
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)



**13 - DPW on/aft 01/1/17: Open Division, linked to Division 01**

	<b>2022 Valuation</b>	<b>2021 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier (80% max)	1.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/20	55/20
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	5.00%	5.00%
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

**20 - Police Command: Closed to new hires, linked to Division 21**

	<b>2022 Valuation</b>	<b>2021 Valuation</b>
<b>Benefit Multiplier:</b>	2.75% Multiplier (80% max)	2.75% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>COLA for Future Retirees:</b>	2.50% (Non-Compound)	2.50% (Non-Compound)
<b>Employee Contributions:</b>	11.24%	11.24%
<b>D-2:</b>	D2 (25%)	D2 (25%)
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

**21 - Command/Patrol on/aft 1/1/20: Open Division, linked to Division 02, 20**

	<b>2022 Valuation</b>	<b>2021 Valuation</b>
<b>Benefit Multiplier:</b>	1.75% Multiplier (no max)	1.75% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	8.29%	8.29%
<b>D-2:</b>	D2 (25%)	D2 (25%)
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)



**50 - Fire on/aft 1/1/17: Open Division, linked to Division 05**

	<b>2022 Valuation</b>	<b>2021 Valuation</b>
<b>Benefit Multiplier:</b>	1.75% Multiplier (no max)	1.75% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	50/25	50/25
	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	7.76%	7.76%
<b>D-2:</b>	D2 (25%)	D2 (25%)
<b>Act 88:</b>	Yes (Adopted 7/10/2001)	Yes (Adopted 7/10/2001)

### Table 3: Participant Summary

Division	2022 Valuation		2021 Valuation		2022 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
<b>01 - DPW</b>							
Active Employees	12	\$ 693,513	13	\$ 689,495	46.8	13.1	13.1
Vested Former Employees	6	70,897	5	63,196	45.3	9.4	10.2
Retirees and Beneficiaries	22	405,107	23	409,247	69.5		
Pending Refunds	5		5				
<b>02 - Police Patrol</b>							
Active Employees	16	\$ 1,248,417	19	\$ 1,279,034	34.1	8.2	9.4
Vested Former Employees	14	288,178	13	244,983	49.0	11.4	15.7
Retirees and Beneficiaries	17	776,958	17	761,338	61.1		
Pending Refunds	14		15				
<b>05 - Firefighters</b>							
Active Employees	21	\$ 1,657,497	25	\$ 1,868,267	45.4	16.4	16.5
Vested Former Employees	6	182,687	6	182,687	51.6	16.2	17.1
Retirees and Beneficiaries	37	1,924,094	33	1,710,901	63.5		
Pending Refunds	4		4				
<b>10 - Admin Professional</b>							
Active Employees	8	\$ 392,258	8	\$ 360,191	54.8	18.3	18.3
Vested Former Employees	8	71,462	12	115,348	52.4	9.9	16.2
Retirees and Beneficiaries	19	344,063	14	305,660	68.4		
Pending Refunds	9		10				
<b>11 - Teamsters</b>							
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	6	163,830	6	163,830	73.8		
Pending Refunds	0		0				
<b>12 - Admin Prof on/aft 1/1/17</b>							
Active Employees	8	\$ 334,157	7	\$ 275,297	40.3	1.8	2.7
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	1	1,682	1	1,682	69.2		
Pending Refunds	9		9				
<b>13 - DPW on/aft 01/1/17</b>							
Active Employees	9	\$ 447,245	8	\$ 362,436	42.5	3.5	3.5
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	4		4				

**Table 3 (continued)**

Division	2022 Valuation		2021 Valuation		2022 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
<b>20 - Police Command</b>							
Active Employees	10	\$ 907,833	10	\$ 854,662	45.6	20.3	20.5
Vested Former Employees	1	16,012	1	16,012	37.7	8.0	14.2
Retirees and Beneficiaries	16	895,547	16	878,349	62.3		
Pending Refunds	0		0				
<b>21 - Command/Patrol on/aft 1/1/20</b>							
Active Employees	12	\$ 470,805	6	\$ 262,449	25.6	0.7	2.1
Vested Former Employees	1	353	0	0	30.5	1.0	1.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	4		1				
<b>50 - Fire on/aft 1/1/17</b>							
Active Employees	14	\$ 716,198	9	\$ 418,360	32.4	2.0	4.5
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	2		2				
<b>Total Municipality</b>							
<b>Active Employees</b>	<b>110</b>	<b>\$ 6,867,923</b>	<b>105</b>	<b>\$ 6,370,191</b>	<b>40.2</b>	<b>9.7</b>	<b>10.4</b>
<b>Vested Former Employees</b>	<b>36</b>	<b>629,589</b>	<b>37</b>	<b>622,226</b>	<b>48.7</b>	<b>11.2</b>	<b>14.7</b>
<b>Retirees and Beneficiaries</b>	<b>118</b>	<b>4,511,281</b>	<b>110</b>	<b>4,231,007</b>	<b>65.5</b>		
<b>Pending Refunds</b>	<b>51</b>		<b>50</b>				
<b>Total Participants</b>	<b>315</b>		<b>302</b>				

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

<sup>2</sup> 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 <sup>1</sup>	Employee <sup>2</sup>	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>
01 - DPW	\$ 4,000,033	\$ 365,093	\$ 4,787,404	\$ 313,396
02 - Police Patrol	9,758,493	1,566,462	11,420,008	1,544,766
05 - Firefighters	14,141,055	2,171,028	15,900,456	2,376,406
10 - Admin Professional	3,277,848	324,198	3,900,523	334,296
11 - Teamsters	1,053,504	0	1,334,511	0
12 - Admin Prof on/aft 1/1/17	55,895	45,544	54,965	27,823
13 - DPW on/aft 01/1/17	55,118	79,541	53,659	54,596
20 - Police Command	7,841,917	1,461,916	9,138,822	1,187,015
21 - Command/Patrol on/aft 1/1/20	8,587	48,558	7,818	19,532
50 - Fire on/aft 1/1/17	38,577	113,204	29,353	59,430
S1 - Surplus Assoc Fire	4,666,832	0	4,191,786	0
S2 - Surplus Assoc Police	4,666,832	0	4,191,786	0
<b>Municipality Total<sup>3</sup></b>	<b>\$ 49,564,691</b>	<b>\$ 6,175,544</b>	<b>\$ 55,011,090</b>	<b>\$ 5,917,261</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$55,740,235</b>		<b>\$60,928,351</b>	

<sup>1</sup> Reserve for Employer Contributions and Benefit Payments.

<sup>2</sup> Reserve for Employee Contributions.

<sup>3</sup> 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 January 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	\$ 1,502,982	\$ 0	\$ 440,059	\$ 1,394,558	\$ (2,073,753)	\$ 0	\$ 0	\$ 29,899,316
2013	1,727,389	0	446,814	1,873,685	(2,184,485)	(7,344)	0	31,755,375
2014	1,863,475	0	445,419	1,878,815	(2,457,430)	(3,012)	106,873	33,589,515
2015	2,065,675	0	434,297	1,678,089	(2,837,027)	0	0	34,930,549
2016	1,835,443	999,999	442,227	2,065,803	(3,002,485)	(62,383)	12,712	37,221,865
2017	2,318,478	1,141,890	473,016	2,351,814	(3,092,898)	0	46,837	40,461,002
2018	2,302,708	1,500,041	500,743	1,572,989	(3,319,579)	(7,832)	0	43,010,072
2019	2,264,527	1,590,180	503,378	2,210,081	(3,573,024)	(2,615)	0	46,002,599
2020	2,472,037	1,704,767	507,807	4,027,028	(3,852,948)	(11,786)	0	50,849,504
2021	3,009,366	1,750,000	495,714	8,830,566	(4,077,886)	(58,196)	39,292	60,838,360
2022	3,265,892	1,934,108	525,343	2,347,415	(4,314,322)	(68,279)	0	64,528,517

**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			
01 - DPW	\$ 1,857,382	\$ 303,855	\$ 4,384,854	\$ 6,208	\$ 6,552,299	\$ 5,053,354	77.1%	\$ 1,498,945
02 - Police Patrol	3,224,023	2,073,124	11,589,364	120,451	17,006,962	13,110,504	77.1%	3,896,458
05 - Firefighters	9,309,615	1,682,216	26,267,814	11,606	37,271,251	18,883,927	50.7%	18,387,324
10 - Admin Professional	1,342,749	461,701	3,464,903	26,557	5,295,910	4,169,962	78.7%	1,125,948
11 - Teamsters	0	0	1,516,540	0	1,516,540	1,219,604	80.4%	296,936
12 - Admin Prof on/aft 1/1/17	66,674	0	20,088	15,004	101,766	117,431	115.4%	(15,665)
13 - DPW on/aft 01/1/17	173,363	0	0	7,513	180,876	155,889	86.2%	24,987
20 - Police Command	6,834,877	50,946	12,504,448	0	19,390,271	10,770,722	55.5%	8,619,549
21 - Command/Patrol on/aft 1/1/20	54,166	3,640	0	9,519	67,325	66,155	98.3%	1,170
50 - Fire on/aft 1/1/17	193,221	0	0	3,735	196,956	175,713	89.2%	21,243
S1 - Surplus Assoc Fire	0	0	0	0	0	5,402,628		(5,402,628)
S2 - Surplus Assoc Police	0	0	0	0	0	5,402,628		(5,402,628)
<b>Total</b>	<b>\$ 23,056,070</b>	<b>\$ 4,575,482</b>	<b>\$ 59,748,011</b>	<b>\$ 200,593</b>	<b>\$ 87,580,156</b>	<b>\$ 64,528,517</b>	<b>73.7%</b>	<b>\$ 23,051,639</b>

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 12, 10	\$ 1,409,423	\$ 461,701	\$ 3,484,991	\$ 41,561	\$ 5,397,676	\$ 4,287,393	79.4%	\$ 1,110,283
Linked Divisions 13, 01	2,030,745	303,855	4,384,854	13,721	6,733,175	5,209,243	77.4%	1,523,932
Linked Divisions 21, 02, 20	10,113,066	2,127,710	24,093,812	129,970	36,464,558	23,947,381	65.7%	12,517,177
Linked Divisions 50, 05	9,502,836	1,682,216	26,267,814	15,341	37,468,207	19,059,640	50.9%	18,408,567

**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	\$ 42,180,888	\$ 23,244,719	55%	\$ 18,936,169
2009	43,641,255	25,330,637	58%	18,310,618
2010	45,576,292	27,192,819	60%	18,383,473
2011	48,645,859	28,635,470	59%	20,010,389
2012	50,274,592	29,899,316	60%	20,375,276
2013	53,345,909	31,755,375	60%	21,590,534
2014	56,783,968	33,589,515	59%	23,194,453
2015	61,743,003	34,930,549	57%	26,812,454
2016	64,160,503	37,221,865	58%	26,938,638
2017	65,850,156	40,461,002	61%	25,389,154
2018	68,549,666	43,010,072	63%	25,539,594
2019	74,014,966	46,002,599	62%	28,012,367
2020	79,103,874	50,849,504	64%	28,254,370
2021	84,252,364	60,838,360	72%	23,414,004
2022	87,580,156	64,528,517	74%	23,051,639

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 01 - DPW

**Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 4,028,810	\$ 3,732,886	93%	\$ 295,924
2013	4,289,392	3,964,718	92%	324,674
2014	4,594,329	4,144,956	90%	449,373
2015	5,065,997	4,235,234	84%	830,763
2016	5,135,243	4,351,046	85%	784,197
2017	5,244,386	4,462,325	85%	782,061
2018	5,384,787	4,459,467	83%	925,320
2019	5,810,793	4,457,476	77%	1,353,317
2020	6,073,139	4,545,318	75%	1,527,821
2021	6,372,288	5,093,267	80%	1,279,021
2022	6,552,299	5,053,354	77%	1,498,945

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 9-01: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	19	\$ 856,300	10.97%	2.30%
2013	20	946,020	11.06%	2.30%
2014	20	929,958	12.08%	2.30%
2015	20	901,017	15.07%	2.30%
2016	19	833,791	15.08%	2.30%
2017	18	851,342	\$ 9,180	5.00%
2018	18	840,383	\$ 10,172	5.00%
2019	15	717,406	\$ 13,093	5.00%
2020	14	741,003	\$ 14,140	5.00%
2021	13	689,495	\$ 12,418	5.00%
2022	12	693,513	\$ 14,491	5.00%

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 02 - Police Patrol

**Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 9,936,249	\$ 7,733,715	78%	\$ 2,202,534
2013	10,905,480	8,360,322	77%	2,545,158
2014	11,449,292	8,871,931	78%	2,577,361
2015	12,319,976	9,279,287	75%	3,040,689
2016	12,838,642	10,013,827	78%	2,824,815
2017	13,859,271	10,769,157	78%	3,090,114
2018	14,165,177	10,641,630	75%	3,523,547
2019	14,919,602	10,840,396	73%	4,079,206
2020	15,993,574	11,608,591	73%	4,384,983
2021	16,451,486	12,945,624	79%	3,505,862
2022	17,006,962	13,110,504	77%	3,896,458

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	27	\$ 1,723,624	17.93%	8.29%
2013	28	1,773,779	19.10%	8.29%
2014	25	1,587,254	20.72%	8.29%
2015	27	1,649,619	22.66%	8.29%
2016	27	1,699,331	21.59%	8.29%
2017	28	1,777,631	22.53%	8.29%
2018	29	1,734,688	25.07%	8.29%
2019	29	1,692,903	28.95%	8.29%
2020	23	1,487,021	\$ 44,380	8.29%
2021	19	1,279,034	\$ 38,150	8.29%
2022	16	1,248,417	\$ 42,197	8.29%

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 05 - Firefighters

**Table 8-05: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 21,924,381	\$ 10,296,036	47%	\$ 11,628,345
2013	23,137,298	10,871,647	47%	12,265,651
2014	24,841,557	11,507,153	46%	13,334,404
2015	26,584,583	11,924,919	45%	14,659,664
2016	27,867,803	12,930,519	46%	14,937,284
2017	28,177,223	13,516,293	48%	14,660,930
2018	28,979,635	13,874,155	48%	15,105,480
2019	31,435,292	14,460,949	46%	16,974,343
2020	33,615,834	15,569,380	46%	18,046,454
2021	35,787,828	18,249,867	51%	17,537,961
2022	37,271,251	18,883,927	51%	18,387,324

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 9-05: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	32	\$ 2,070,575	43.48%	7.76%
2013	32	2,123,299	44.85%	7.76%
2014	32	2,061,494	49.38%	7.76%
2015	32	2,037,634	55.69%	7.76%
2016	32	2,086,805	56.20%	7.76%
2017	32	2,033,490	\$ 101,798	7.76%
2018	31	2,019,738	\$ 107,672	7.76%
2019	30	2,128,554	\$ 125,690	7.76%
2020	26	1,972,595	\$ 136,133	7.76%
2021	25	1,868,267	\$ 133,710	7.76%
2022	21	1,657,497	\$ 143,951	7.76%

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 - Admin Professional

**Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 3,642,837	\$ 2,618,706	72%	\$ 1,024,131
2013	3,803,228	2,748,191	72%	1,055,037
2014	3,943,903	2,895,820	73%	1,048,083
2015	4,328,690	3,022,706	70%	1,305,984
2016	4,429,119	3,185,399	72%	1,243,720
2017	4,353,843	3,534,108	81%	819,735
2018	4,447,557	3,564,955	80%	882,602
2019	4,655,786	3,604,626	77%	1,051,160
2020	4,955,243	3,755,909	76%	1,199,334
2021	5,211,031	4,228,564	81%	982,467
2022	5,295,910	4,169,962	79%	1,125,948

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	18	\$ 696,170	17.13%	3.90%
2013	19	770,061	16.56%	3.90%
2014	17	699,196	17.51%	3.90%
2015	19	756,724	19.68%	3.90%
2016	19	783,370	18.67%	3.90%
2017	17	673,625	\$ 7,925	5.00%
2018	15	617,920	\$ 8,416	5.00%
2019	13	556,959	\$ 9,370	5.00%
2020	10	477,667	\$ 9,893	5.00%
2021	8	360,191	\$ 8,071	5.00%
2022	8	392,258	\$ 9,728	5.00%

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 11 - Teamsters

**Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 1,584,636	\$ 439,610	28%	\$ 1,145,026
2013	1,593,999	436,926	27%	1,157,073
2014	1,605,233	442,491	28%	1,162,742
2015	1,737,395	355,421	21%	1,381,974
2016	1,724,994	270,628	16%	1,454,366
2017	1,549,888	1,381,962	89%	167,926
2018	1,488,750	1,396,438	94%	92,312
2019	1,553,728	1,327,599	85%	226,129
2020	1,550,922	1,270,219	82%	280,703
2021	1,554,399	1,332,540	86%	221,859
2022	1,516,540	1,219,604	80%	296,936

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	2	\$ 132,347	58.92%	2.00%
2013	2	135,314	58.76%	2.00%
2014	2	136,484	58.89%	2.00%
2015	1	66,496	352.21%	2.00%
2016	1	74,010	121.95%	2.00%
2017	1	78,313	13.62%	5.00%
2018	1	81,544	14.04%	5.00%
2019	0	0	\$ 1,516	5.00%
2020	0	0	\$ 1,882	5.00%
2021	0	0	\$ 1,446	5.00%
2022	0	0	\$ 2,116	5.00%

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 - Admin Prof on/aft 1/1/17

**Table 8-12: 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	222	3,915	1764%	(3,693)
2018	12,734	18,490	145%	(5,756)
2019	31,654	38,054	120%	(6,400)
2020	51,880	58,563	113%	(6,683)
2021	65,990	82,666	125%	(16,676)
2022	101,766	117,431	115%	(15,665)

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	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	0.00%
2017	2	77,819	5.59%	5.00%
2018	4	147,733	4.15%	5.00%
2019	4	141,313	2.43%	5.00%
2020	5	223,836	3.88%	5.00%
2021	7	275,297	2.99%	5.00%
2022	8	334,157	3.29%	5.00%

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.

**Table 8-13: 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	5,967	5,217	87%	750
2018	20,539	17,555	85%	2,984
2019	40,155	34,950	87%	5,205
2020	74,930	65,589	88%	9,341
2021	114,912	108,096	94%	6,816
2022	180,876	155,889	86%	24,987

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 9-13: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	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	0.00%
2017	3	83,530	2.87%	5.00%
2018	4	152,299	2.97%	5.00%
2019	7	247,142	3.19%	5.00%
2020	8	362,277	3.50%	5.00%
2021	8	362,436	4.05%	5.00%
2022	9	447,245	4.52%	5.00%

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 20 - Police Command

**Table 8-20: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 9,157,679	\$ 5,078,363	56%	\$ 4,079,316
2013	9,616,512	5,373,571	56%	4,242,941
2014	10,349,654	5,727,164	55%	4,622,490
2015	11,706,362	6,112,982	52%	5,593,380
2016	12,164,702	6,470,446	53%	5,694,256
2017	12,659,356	6,788,025	54%	5,871,331
2018	14,043,572	7,460,719	53%	6,582,853
2019	15,548,130	7,938,996	51%	7,609,134
2020	16,737,169	8,423,476	50%	8,313,693
2021	18,575,128	10,310,586	56%	8,264,542
2022	19,390,271	10,770,722	56%	8,619,549

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 9-20: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2012	9	\$ 687,414	43.46%	11.24%
2013	9	695,724	45.30%	11.24%
2014	9	685,804	49.49%	11.24%
2015	9	710,674	58.51%	11.24%
2016	9	720,662	59.49%	11.24%
2017	9	748,325	60.62%	11.24%
2018	10	822,149	63.21%	11.24%
2019	10	811,353	77.29%	11.24%
2020	10	867,021	\$ 61,220	11.24%
2021	10	854,662	\$ 62,229	11.24%
2022	10	907,833	\$ 67,535	11.24%

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 - Command/Patrol on/aft 1/1/20

**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	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	2,727	2,537	93%	190
2021	25,230	27,309	108%	(2,079)
2022	67,325	66,155	98%	1,170

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	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	0.00%
2017	0	0	\$ 0	0.00%
2018	0	0	\$ 0	0.00%
2019	0	0	\$ 0	0.00%
2020	3	102,595	1.35%	8.29%
2021	6	262,449	1.89%	8.29%
2022	12	470,805	2.32%	8.29%

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 50 - Fire on/aft 1/1/17

**Table 8-50: 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	6,915	7,943	115%	(1,028)
2019	19,826	19,985	101%	(159)
2020	48,456	44,146	91%	4,310
2021	94,072	88,651	94%	5,421
2022	196,956	175,713	89%	21,243

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 9-50: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	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	0.00%
2017	0	0	\$ 0	0.00%
2018	2	57,481	1.63%	7.76%
2019	4	149,751	2.18%	7.76%
2020	6	291,070	3.24%	7.76%
2021	9	418,360	3.90%	7.76%
2022	14	716,198	3.79%	7.76%

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 Assoc Fire

**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	784,360		(784,360)
2019	0	1,639,784		(1,639,784)
2020	0	2,752,888		(2,752,888)
2021	0	4,185,595		(4,185,595)
2022	0	5,402,628		(5,402,628)

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.

## Division S2 - Surplus Assoc Police

**Table 8-S2: 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	784,360		(784,360)
2019	0	1,639,784		(1,639,784)
2020	0	2,752,888		(2,752,888)
2021	0	4,185,595		(4,185,595)
2022	0	5,402,628		(5,402,628)

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 01 - DPW

**Table 10-01: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 830,763	23	\$ 859,940	16	\$ 72,840
(Gain)/Loss	12/31/2016	(82,526)	22	(87,465)	16	(7,404)
(Gain)/Loss	12/31/2017	5,781	21	6,070	16	516
Amendment	12/31/2017	(9,047)	21	(9,533)	16	(804)
(Gain)/Loss	12/31/2018	138,266	20	144,911	16	12,276
(Gain)/Loss	12/31/2019	222,251	19	231,582	16	19,620
Assumption	12/31/2019	192,311	19	195,993	16	16,608
Experience	12/31/2020	145,727	18	152,828	16	12,948
Experience	12/31/2021	(255,436)	17	(269,517)	16	(22,836)
Experience	12/31/2022	256,898	16	274,881	16	23,280
<b>Total</b>				<b>\$ 1,499,690</b>		<b>\$ 127,044</b>

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

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

<sup>3</sup> 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 02 - Police Patrol

**Table 10-02: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 3,040,689	23	\$ 3,080,443	16	\$ 260,928
(Gain)/Loss	12/31/2016	(280,062)	22	(296,837)	16	(25,140)
(Gain)/Loss	12/31/2017	260,150	21	273,893	16	23,196
(Gain)/Loss	12/31/2018	394,380	20	413,318	16	35,016
(Gain)/Loss	12/31/2019	(70,906)	19	(73,885)	16	(6,264)
Assumption	12/31/2019	581,584	19	592,887	16	50,220
Experience	12/31/2020	274,390	18	287,753	16	24,372
Experience	12/31/2021	(886,657)	17	(935,539)	16	(79,248)
Experience	12/31/2022	507,346	16	542,860	16	45,984
<b>Total</b>				<b>\$ 3,884,893</b>		<b>\$ 329,064</b>

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

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

<sup>3</sup> 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 05 - Firefighters

**Table 10-05: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 14,659,664	23	\$ 14,825,094	16	\$ 1,255,764
(Gain)/Loss	12/31/2016	(5,596)	22	(5,932)	16	(504)
(Gain)/Loss	12/31/2017	(236,519)	21	(249,001)	16	(21,096)
Amendment	12/31/2017	(168,365)	21	(177,243)	16	(15,012)
(Gain)/Loss	12/31/2018	375,305	20	393,341	16	33,324
(Gain)/Loss	12/31/2019	654,589	19	682,056	16	57,780
Assumption	12/31/2019	1,120,922	19	1,108,463	16	93,888
Experience	12/31/2020	968,055	18	1,015,188	16	85,992
Experience	12/31/2021	(526,655)	17	(555,690)	16	(47,076)
Experience	12/31/2022	1,111,138	16	1,188,918	16	100,704
<b>Total</b>				<b>\$ 18,225,194</b>		<b>\$ 1,543,764</b>

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

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

<sup>3</sup> 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 - Admin Professional

**Table 10-10: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,305,984	23	\$ 1,325,654	16	\$ 112,296
(Gain)/Loss	12/31/2016	(92,486)	22	(98,018)	16	(8,304)
(Gain)/Loss	12/31/2017	(403,688)	21	(425,002)	16	(36,000)
Amendment	12/31/2017	(24,631)	21	(25,933)	16	(2,196)
(Gain)/Loss	12/31/2018	87,723	20	91,933	16	7,788
(Gain)/Loss	12/31/2019	16,887	19	17,582	16	1,488
Assumption	12/31/2019	141,332	19	143,854	16	12,180
Experience	12/31/2020	138,093	18	144,816	16	12,264
Experience	12/31/2021	(223,987)	17	(236,330)	16	(20,016)
Experience	12/31/2022	174,188	16	186,381	16	15,792
<b>Total</b>				<b>\$ 1,124,937</b>		<b>\$ 95,292</b>

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

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

<sup>3</sup> 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 - Teamsters

**Table 10-11: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,381,974	23	\$ 1,288,736	16	\$ 109,164
(Gain)/Loss	12/31/2016	982	22	1,039	16	84
(Gain)/Loss	12/31/2017	(1,143,013)	21	(1,203,367)	16	(101,928)
Amendment	12/31/2017	(907)	21	(941)	16	(84)
(Gain)/Loss	12/31/2018	4,855	20	5,073	16	432
(Gain)/Loss	12/31/2019	89,079	19	92,810	16	7,860
Assumption	12/31/2019	44,293	19	45,451	16	3,852
Experience	12/31/2020	44,969	18	47,155	16	3,996
Experience	12/31/2021	(61,510)	17	(64,898)	16	(5,496)
Experience	12/31/2022	82,910	16	88,714	16	7,512
<b>Total</b>				<b>\$ 299,772</b>		<b>\$ 25,392</b>

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

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

<sup>3</sup> 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 - Admin Prof on/aft 1/1/17

**Table 10-12: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ (3,693)	15	\$ (3,406)	10	\$ (420)
(Gain)/Loss	12/31/2018	(1,776)	15	(1,702)	11	(192)
(Gain)/Loss	12/31/2019	(1,355)	15	(1,342)	12	(144)
Assumption	12/31/2019	778	15	784	12	84
Experience	12/31/2020	(372)	15	(381)	13	(36)
Experience	12/31/2021	(10,116)	15	(10,588)	14	(996)
Experience	12/31/2022	1,482	15	1,586	15	144
<b>Total</b>				<b>\$ (15,049)</b>		<b>\$ (1,560)</b>

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

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

<sup>3</sup> 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 13 - DPW on/aft 01/1/17

**Table 10-13: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 750	15	\$ 685	10	\$ 84
(Gain)/Loss	12/31/2018	2,176	15	2,108	11	240
(Gain)/Loss	12/31/2019	1,609	15	1,583	12	168
Assumption	12/31/2019	461	15	428	12	48
Experience	12/31/2020	4,040	15	4,132	13	408
Experience	12/31/2021	(2,718)	15	(2,838)	14	(264)
Experience	12/31/2022	18,650	15	19,955	15	1,776
<b>Total</b>				<b>\$ 26,053</b>		<b>\$ 2,460</b>

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

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

<sup>3</sup> 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 20 - Police Command

**Table 10-20: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 5,593,380	23	\$ 5,671,697	16	\$ 480,420
(Gain)/Loss	12/31/2016	(22,439)	22	(23,789)	16	(2,016)
(Gain)/Loss	12/31/2017	129,426	21	136,270	16	11,544
(Gain)/Loss	12/31/2018	663,143	20	695,016	16	58,872
(Gain)/Loss	12/31/2019	374,994	19	390,717	16	33,096
Assumption	12/31/2019	574,489	19	572,195	16	48,468
Experience	12/31/2020	646,378	18	677,846	16	57,420
Experience	12/31/2021	(73,580)	17	(77,637)	16	(6,576)
Experience	12/31/2022	463,987	16	496,466	16	42,048
<b>Total</b>				<b>\$ 8,538,781</b>		<b>\$ 723,276</b>

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

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

<sup>3</sup> 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 - Command/Patrol on/aft 1/1/20

**Table 10-21: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Experience	12/31/2022	\$ 1,170	15	\$ 1,252	15	\$ 108
<b>Total</b>				<b>\$ 1,252</b>		<b>\$ 108</b>

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

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

<sup>3</sup> 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 50 - Fire on/aft 1/1/17

**Table 10-50: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2024		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Experience	12/31/2020	\$ 4,310	15	\$ 4,415	13	\$ 432
Experience	12/31/2021	779	15	818	14	72
Experience	12/31/2022	15,877	15	16,988	15	1,512
<b>Total</b>				<b>\$ 22,221</b>		<b>\$ 2,016</b>

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

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

<sup>3</sup> 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:		118
Inactive employees entitled to but not yet receiving benefits (including refunds):		87
Active employees:		<u>110</u>
		315
Total Pension Liability as of 12/31/2021 measurement date:	\$	81,695,314
Total Pension Liability as of 12/31/2022 measurement date:	\$	84,955,274
Service Cost for the year ending on the 12/31/2022 measurement date:	\$	1,073,413
Change in the Total Pension Liability due to:		
- Benefit changes <sup>1</sup> :	\$	0
- Differences between expected and actual experience <sup>2</sup> :	\$	766,196
- Changes in assumptions <sup>2</sup> :	\$	0
Average expected remaining service lives of all employees (active and inactive):		4

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

<sup>2</sup> 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):	\$	6,867,923
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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 (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
Change in Net Pension Liability as of 12/31/2022:	\$ 10,993,501	\$ 0	\$ (9,039,762)

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.

## GASB Statement No. 68 Information

This page is for those municipalities who need to “roll forward” their total pension liability due to the timing of completion of the actuarial valuation in relation to their fiscal year-end.

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 [www.mersofmich.com](http://www.mersofmich.com).

Actuarial Valuation Date:	12/31/2022
Measurement Date of the Total Pension Liability (TPL):	12/31/2023

At 12/31/2022, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	118
Inactive employees entitled to but not yet receiving benefits (including refunds):	87
Active employees:	<u>110</u>
	315

Total Pension Liability as of 12/31/2022 measurement date:	\$ 83,970,638
Total Pension Liability as of 12/31/2023 measurement date:	\$ 87,184,024
Service Cost for the year ending on the 12/31/2023 measurement date:	\$ 1,092,692
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ 1,056,026
- Changes in assumptions <sup>2</sup> :	\$ 0

Average expected remaining service lives of all employees (active and inactive):	4
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<sup>1</sup> A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

<sup>2</sup> 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):	\$ 6,867,923
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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 12/31/2023:	\$ 11,164,889	\$ 0	\$ (9,188,800)

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.

## 01 - DPW

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2017	Day of Work defined as 10 8 hour days
1/1/2017	Non Standard Compensation Definition
1/1/2017	Participant Contribution Rate 5%
12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2005	Benefit B-3 (80% max)
7/1/2005	Member Contribution Rate 2.30%
7/10/2001	Covered by Act 88
7/1/1997	Benefit B-2 (No Max)
7/1/1997	Benefit F55 (With 20 Years of Service)
7/1/1995	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1995	6 Year Vesting
7/1/1995	Benefit C-1 (New) (No Max)
7/1/1995	Member Contribution Rate 0.00%
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 02 - Police Patrol

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2019	Day of work defined as 80 Hours a Month for All employees.
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2007	Member Contribution Rate 8.29%
12/1/2005	Benefit D2 Plan
12/1/2005	Benefit FAC-3 (3 Year Final Average Compensation)
12/1/2005	2.75% Multiplier (80% max)
12/1/2005	Member Contribution Rate 8.79%
1/1/2002	Member Contribution Rate 4.50%
7/10/2001	Covered by Act 88
1/1/2000	Benefit B-4 (80% max)
1/1/2000	Member Contribution Rate 6.50%
1/1/2000	E2 2.5% COLA for future retirees (01/01/2000)
1/1/1999	Member Contribution Rate 2.50%
7/1/1996	Benefit FAC-5 (5 Year Final Average Compensation)



## 02 - Police Patrol

7/1/1996	10 Year Vesting
7/1/1996	Benefit B-3 (80% max)
7/1/1996	Benefit F50 (With 25 Years of Service)
7/1/1996	Member Contribution Rate 3.50%
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 05 - Firefighters

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 100 hours
1/1/2021	Custom Wages
1/1/2017	Day of work defined as 100.8 hours in a month
1/1/2017	Non Standard Compensation Definition
1/1/2017	Benefit B-4 (80% max)
12/31/2016	Current FAC
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2005	Member Contribution Rate 7.76%
1/1/2004	2.75% Multiplier (80% max)
1/1/2004	Member Contribution Rate 8.07%
7/10/2001	Covered by Act 88
7/1/1999	Benefit D2 Plan
7/1/1999	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/1999	10 Year Vesting
7/1/1999	Benefit B-4 (80% max)
7/1/1999	Benefit F50 (With 25 Years of Service)
7/1/1999	Member Contribution Rate 4.19%
7/1/1999	E2 2.5% COLA for future retirees (07/01/1999)
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 10 - Admin Professional

1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
4/1/2017	Participant Contribution Rate 5%
1/1/2017	Day of Work defined as 10 8 hour days
1/1/2017	Non Standard Compensation Definition
1/1/2017	Benefit B-3 (80% max)
12/31/2016	Current FAC
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2007	Benefit B-4 (80% max)
1/1/2007	Member Contribution Rate 3.90%
1/1/2004	Benefit B-3 (80% max)
1/1/2004	Member Contribution Rate 1.50%



## 10 - Admin Professional

7/10/2001	Covered by Act 88
7/1/2000	Benefit B-2 (No Max)
7/1/2000	Member Contribution Rate 0.60%
1/1/1998	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1998	10 Year Vesting
1/1/1998	Benefit C-1 (New) (No Max)
1/1/1998	Benefit F55 (With 25 Years of Service)
1/1/1998	Member Contribution Rate 0.00%
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 11 - Teamsters

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2018	Participant Contribution Rate 5%
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2004	6 Year Vesting
1/1/2002	Member Contribution Rate 2.00%
7/10/2001	Covered by Act 88
7/1/2000	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2000	10 Year Vesting
7/1/2000	Benefit B-2 (No Max)
7/1/2000	Benefit F55 (With 20 Years of Service)
7/1/2000	Member Contribution Rate 0.00%
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 12 - Admin Prof on/aft 1/1/17

1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2017	Day of Work defined as 10 8 hour days
1/1/2017	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2017	Non Standard Compensation Definition
1/1/2017	10 Year Vesting
1/1/2017	Defined Benefit Normal Retirement Age - 60
1/1/2017	Service Credit Purchase Estimates - Yes
1/1/2017	Benefit C-1 (New) (No Max)
1/1/2017	Benefit F55 (With 25 Years of Service)
1/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2017	Participant Contribution Rate 5%
7/10/2001	Covered by Act 88
7/1/1995	Fiscal Month - January



### 13 - DPW on/aft 01/1/17

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2017	Day of Work defined as 10 8 hour days
1/1/2017	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2017	Non Standard Compensation Definition
1/1/2017	6 Year Vesting
1/1/2017	Defined Benefit Normal Retirement Age - 60
1/1/2017	Service Credit Purchase Estimates - Yes
1/1/2017	1.5% multiplier (80% max)
1/1/2017	Benefit F55 (With 20 Years of Service)
1/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2017	Participant Contribution Rate 5%
7/10/2001	Covered by Act 88
7/1/1995	Fiscal Month - January

### 20 - Police Command

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2020	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2019	Day of work defined as 80 Hours a Month for All employees.
7/1/2018	Non Standard Compensation Definition
12/1/2016	Service Credit Purchase Estimates - Yes
8/1/2005	2.75% Multiplier (80% max)
8/1/2005	Member Contribution Rate 11.24%
1/1/2005	Member Contribution Rate 5.50%
1/1/2003	Member Contribution Rate 8.00%
1/1/2002	Member Contribution Rate 7.00%
1/1/2002	E2 2.5% COLA for future retirees (07/01/2001)
7/10/2001	Covered by Act 88
7/1/2001	Benefit D2 Plan
7/1/2001	Benefit B-4 (80% max)
7/1/2001	Benefit F50 (With 25 Years of Service)
7/1/2001	Member Contribution Rate 6.00%
1/1/2001	Member Contribution Rate 4.50%
1/1/1998	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1998	10 Year Vesting
1/1/1998	Benefit B-3 (80% max)
1/1/1998	Benefit F55 (With 15 Years of Service)
1/1/1998	Eligible at Age 52 (With 25 Years of Service)
1/1/1998	Member Contribution Rate 5.50%
7/1/1995	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60

## 20 - Police Command

Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 21 - Command/Patrol on/aft 1/1/20

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 80 hours
1/1/2021	Custom Wages
1/1/2020	Day of work defined as 80 Hours a Month for All employees.
1/1/2020	Benefit D2 Plan
1/1/2020	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2020	Non Standard Compensation Definition
1/1/2020	10 Year Vesting
1/1/2020	Defined Benefit Normal Retirement Age - 60
1/1/2020	Service Credit Purchase Estimates - Yes
1/1/2020	1.75% multiplier (No Max)
1/1/2020	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2020	Benefit F55 (With 25 Years of Service)
1/1/2020	Participant Contribution Rate 8.29%
7/10/2001	Covered by Act 88
7/1/1995	Fiscal Month - January

## 50 - Fire on/aft 1/1/17

1/1/2021	Public Safety Employees - Yes
1/1/2021	Other Leave - Service Granted
1/1/2021	Workers Compensation - Service Granted
1/1/2021	Service Credit Qualification - 100 hours
1/1/2021	Custom Wages
1/1/2017	Day of work defined as 100.8 hours in a month
1/1/2017	Benefit D2 Plan
1/1/2017	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2017	Non Standard Compensation Definition
1/1/2017	10 Year Vesting
1/1/2017	Defined Benefit Normal Retirement Age - 60
1/1/2017	Service Credit Purchase Estimates - Yes
1/1/2017	1.75% multiplier (No Max)
1/1/2017	Benefit F55 (With 25 Years of Service)
1/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
1/1/2017	Participant Contribution Rate 7.76%
7/10/2001	Covered by Act 88
7/1/1995	Fiscal Month - January

## S1 - Surplus Assoc Fire

7/1/1995 Fiscal Month - January

## S2 - Surplus Assoc Police

7/1/1995 Fiscal Month - January



# 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
All Divisions	1.00%

## 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	8.1	9.6	8.0	7.0	6.1
2. Ratio of actuarial accrued liability to payroll	12.8	13.2	12.1	11.5	10.6
3. Ratio of actives to retirees and beneficiaries	0.9	1.0	1.0	1.1	1.2
4. Ratio of market value of assets to benefit payments	12.7	14.7	13.5	12.7	11.8
5. Ratio of net cash flow to market value of assets (boy)	2.2%	2.2%	1.8%	2.0%	2.4%

### 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](http://www.mersofmich.com) and on the State [website](#).

Form 5572		
Line Reference	Description	Result
<b>10</b>	<b>Membership as of December 31, 2022</b>	
11	Indicate number of active members	110
12	Indicate number of inactive members (excluding pending refunds)	36
13	Indicate number of retirees and beneficiaries	118
<b>14</b>	<b>Investment Performance for Calendar Year Ending December 31, 2022<sup>1</sup></b>	
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%
<b>18</b>	<b>Actuarial Assumptions</b>	
19	Actuarial assumed rate of investment return <sup>2</sup>	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 <sup>3</sup>	16
22	Is each division within the system closed to new employees? <sup>4</sup>	No
<b>23</b>	<b>Uniform Assumptions</b>	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$60,212,330
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions <sup>5</sup>	\$89,173,748
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending December 31, 2023	\$3,931,716

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%.

