



Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report
December 31, 2021 - Pittsfield Chtr Twp (8110)





Spring, 2022

Pittsfield 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 Pittsfield Chtr Twp (8110) as of December 31, 2021. 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. Pittsfield 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, 2021,
- Establish contribution requirements for the fiscal year beginning January 1, 2023,
- 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, 2021. 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 will automatically reduce the assumed rate of investment return in conjunction with recognizing excess investment gains to mitigate the impact on employer contributions the first year. The new policy is effective with this December 31, 2021 annual actuarial valuation, and is reflected in the funded status and fiscal year 2023 contributions as shown in the Executive Summary.

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-2021AnnualActuarialValuation-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, 2021. It does not reflect the ongoing impact of COVID-19, which is likely to influence demographic and economic experience, at least in the short term. We will continue to monitor these developments and their impact on the MERS Defined Benefit and Hybrid plans. 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 Pittsfield 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.

David T. Kausch, Rebecca L. Stouffer, and Mark Buis 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).

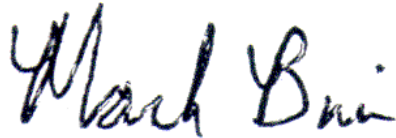
Sincerely,
Gabriel, Roeder, Smith & Company



David T. Kausch, FSA, FCA, EA, MAAA



Rebecca L. Stouffer, ASA, FCA, MAAA



Mark Buis, FSA, FCA, EA, 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.

	12/31/2021	12/31/2020
Funded Ratio*	73%	69%

* 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 for the December 31, 2021 valuation, the MERS Retirement Board has 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 (discussed below). Changes to these assumptions and methods are effective for contributions beginning in 2023. Effective with the 2020 and 2019 valuations respectively, the MERS Retirement Board adopted updated demographic and economic assumptions. The combined impact of the prior demographic and economic assumption changes may be phased in. The remaining combined phase-in period is three years for all assumption changes.

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:	12/31/2021	12/31/2021	12/31/2020	12/31/2020	12/31/2021	12/31/2021	12/31/2020	12/31/2020
Fiscal Year Beginning:	January 1, 2023	January 1, 2023	January 1, 2022	January 1, 2022	January 1, 2023	January 1, 2023	January 1, 2022	January 1, 2022
Division								
01 - TPOAM	-	-	-	-	\$ 4,631	\$ 5,005	\$ 4,839	\$ 5,400
02 - Pol Ptrl	-	-	-	-	40,214	43,262	31,678	36,250
05 - Fire Fght	-	-	-	-	20,606	22,382	18,634	21,298
10 - Elctd Ofc	-	-	-	-	6,452	6,602	6,245	6,470
11 - Dsptrchr	-	-	-	-	0	0	0	0
14 - Adm/NonUnion	-	-	-	-	20,540	22,552	19,616	22,634
15 - Utilities Dr	-	-	-	-	1,207	1,279	1,197	1,305
20 - Pol Cmnd	-	-	-	-	63,084	66,668	56,193	61,569
HA - POLC/cler/Dispatch aft 7/1/14	-	-	-	-	0	0	0	0
HB - IAFF ee's hired on/aft 1/1/14	9.77%	9.80%	8.91%	8.95%	2,263	2,269	1,785	1,794
HD - POAM on/aft 1/1/2015	6.39%	6.39%	6.25%	6.25%	4,819	4,819	4,660	4,660
HE - Non-union on/aft 1/1/2015	8.00%	8.18%	8.23%	8.49%	5,867	5,999	6,391	6,589
HF - TPOAM on/aft 3/30/15	8.83%	9.05%	7.94%	8.27%	6,198	6,350	5,445	5,673
HG - Elctd Ofc on/aft 1/1/15	11.31%	12.07%	9.76%	10.92%	1,167	1,245	983	1,100
Total Municipality - Estimated Monthly Contribution					\$ 177,048	\$ 188,432	\$ 157,666	\$ 174,742
Total Municipality - Estimated Annual Contribution					\$ 2,124,576	\$ 2,261,184	\$ 1,891,992	\$ 2,096,904

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2021	12/31/2020
Division		
01 - TPOAM	3.00%	3.00%
02 - Pol Ptrl	6.17%	6.17%
05 - Fire Fght	5.00%	5.00%
10 - Elctd Ofc	6.93%	6.93%
11 - Dsptrchr	5.00%	5.00%
14 - Adm/NonUnion	5.00%	5.00%
15 - Utilities Dr	6.00%	6.00%
20 - Pol Cmnd	9.06%	9.06%
HA - POLC/cler/Dispatch aft 7/1/14	0.00%	0.00%
HB - IAFF ee's hired on/aft 1/1/14	0.00%	0.00%
HD - POAM on/aft 1/1/2015	0.00%	0.00%
HE - Non-union on/aft 1/1/2015	0.00%	0.00%
HF - TPOAM on/aft 3/30/15	0.00%	0.00%
HG - Elctd Ofc on/aft 1/1/15	0.00%	0.00%



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 of what MERS calls “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 Surplus divisions would not immediately lower future contributions, however the assets from the Surplus division 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 return are being used to lower the investment assumption, there will be less 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 2023 for the entire employer would be \$247,967, instead of \$188,432.

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 2021

Effective February 17, 2022, the MERS Retirement Board adopted a dedicated gains policy that automatically adjusts 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 year after implementation (i.e., minimize the first-year impact (i.e., increase) in employer contributions).

The dedicated gains policy has been implemented with the December 31, 2021 annual actuarial valuation. After initial application of the smoothing method, remaining market gains were used to lower the assumed rate of investment return from 7.35% to 7.00%. The December 31, 2021 valuation liabilities were developed using this new, lower assumption. Additionally, as a result of recognizing excess market gains, the valuation assets used to fund these liabilities are 7.2% higher than if there were no dedicated gain policy. The combined impact of these changes will minimize the first-year impact on employer contributions and may result in an increase or a decrease in employer contributions.

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 2021 was 17.04%, while the actual market rate of return was 13.97%.** 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, 2021, the actuarial value of assets is just below 100% of market value due to asset smoothing and dedicated gains. This means that rate of return on the actuarial value of assets should exceed the actuarial assumption in the next few years provided that the annual market returns meet or exceed the 7.00% investment return assumption. When all assumptions are met, contribution rates are expected to stay approximately level as a percent of payroll (dollar amounts are expected to increase with wage inflation of 3.0% each year).

As of December 31, 2021, the market value of assets and actuarial value of assets are very similar, resulting in a funded percentage that is not materially different.

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 future 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, 2021 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 with 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.

12/31/2021 Valuation Results	Lower Future Annual Returns	Lower Future Annual Returns	Valuation Assumptions
Investment Return Assumption	5.00%	6.00%	7.00%
Accrued Liability	\$ 77,650,835	\$ 66,872,031	\$ 58,136,230
Valuation Assets ¹	\$ 42,170,307	\$ 42,170,307	\$ 42,170,307
Unfunded Accrued Liability	\$ 35,480,528	\$ 24,701,724	\$ 15,965,923
Funded Ratio	54%	63%	73%
Monthly Normal Cost	\$ 134,215	\$ 96,280	\$ 68,265
Monthly Amortization Payment	\$ 219,420	\$ 164,532	\$ 114,592
Total Employer Contribution²	\$ 353,931	\$ 264,230	\$ 188,432

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

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

Projection Scenarios



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

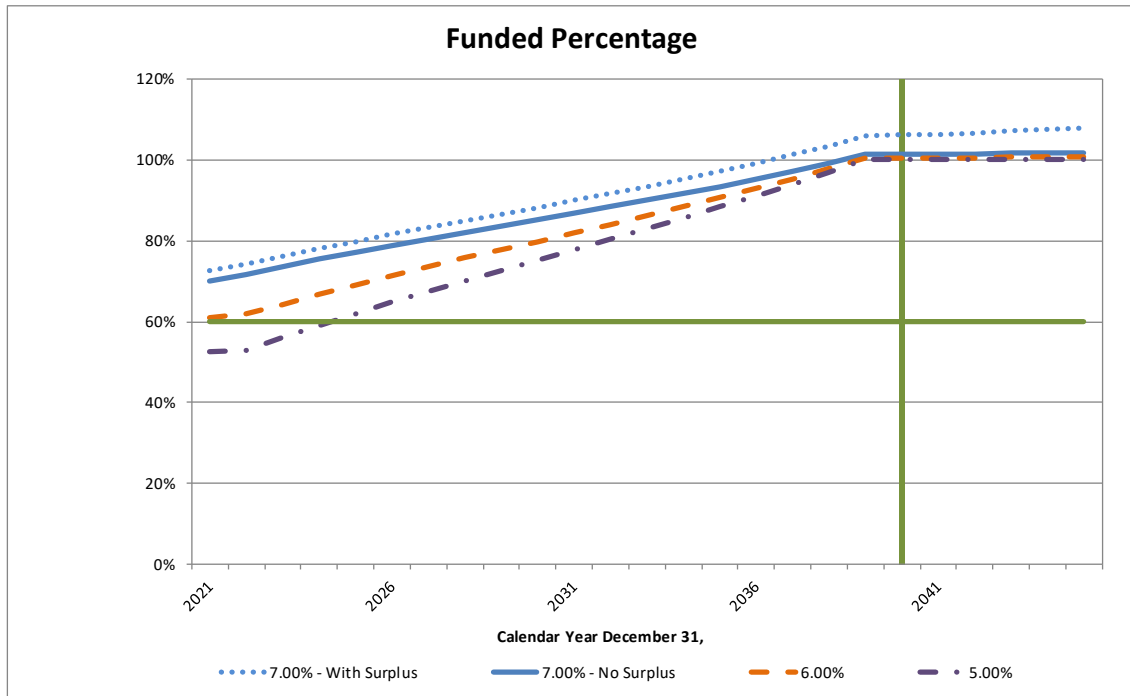
The 7.00% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.00% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively and make contributions in addition to the minimum requirements. 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 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 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 ²	Funded Percentage	Estimated Annual Employer Contribution
7.00%¹ - NO PHASE-IN					
2021	2023	\$ 58,136,230	\$ 40,713,312	70%	\$ 2,261,184
2022	2024	\$ 61,200,000	\$ 43,900,000	72%	\$ 2,380,000
2023	2025	\$ 64,400,000	\$ 47,400,000	74%	\$ 2,460,000
2024	2026	\$ 67,700,000	\$ 51,100,000	75%	\$ 2,540,000
2025	2027	\$ 71,000,000	\$ 54,800,000	77%	\$ 2,620,000
2026	2028	\$ 74,300,000	\$ 58,600,000	79%	\$ 2,700,000
6.00%¹ - NO PHASE-IN					
2021	2023	\$ 66,872,031	\$ 40,713,312	61%	\$ 3,170,760
2022	2024	\$ 70,200,000	\$ 43,500,000	62%	\$ 3,350,000
2023	2025	\$ 73,800,000	\$ 47,500,000	64%	\$ 3,450,000
2024	2026	\$ 77,400,000	\$ 51,700,000	67%	\$ 3,560,000
2025	2027	\$ 80,900,000	\$ 55,900,000	69%	\$ 3,670,000
2026	2028	\$ 84,500,000	\$ 60,300,000	71%	\$ 3,780,000
5.00%¹ - NO PHASE-IN					
2021	2023	\$ 77,650,835	\$ 40,713,312	52%	\$ 4,247,172
2022	2024	\$ 81,300,000	\$ 43,100,000	53%	\$ 4,500,000
2023	2025	\$ 85,300,000	\$ 47,700,000	56%	\$ 4,630,000
2024	2026	\$ 89,200,000	\$ 52,600,000	59%	\$ 4,770,000
2025	2027	\$ 93,000,000	\$ 57,600,000	62%	\$ 4,900,000
2026	2028	\$ 96,900,000	\$ 62,700,000	65%	\$ 5,040,000

- ¹ Represents both the interest rate for discounting liabilities and the future investment return assumption on the Market Value of assets.
- ² Valuation Assets do not include assets from Surplus divisions, if any.

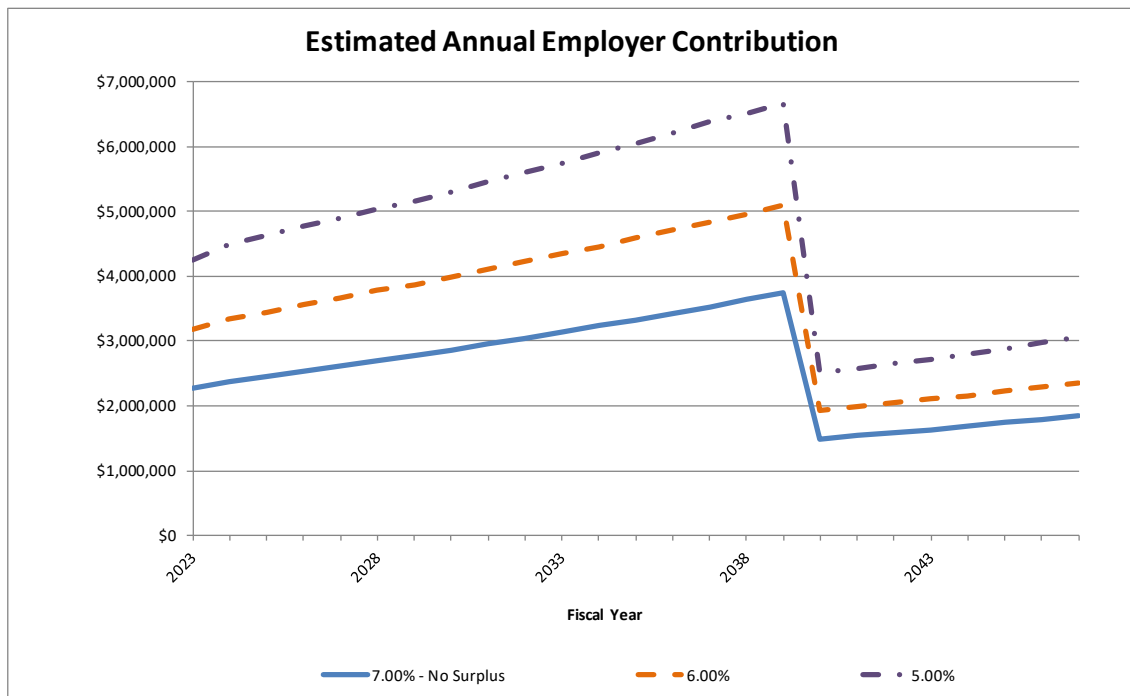


Notes:

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

Assumes assets from Surplus divisions will not be used to lower employer contributions during the projection period.

The green indicator lines have been added at 60% funded and 19 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 divisions.

Table 1: Employer Contribution Details for the Fiscal Year Beginning January 1, 2023

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions ¹			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribut. Conversion Factor ²
			Employer Normal Cost ⁶	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
01 - TPOAM	9.87%	3.00%	-	-	-	-	10.59%	10.10%	
02 - Pol Ptrl	16.85%	6.17%	-	-	-	-	22.68%	21.24%	
05 - Fire Fght	13.03%	5.00%	-	-	-	-	13.37%	12.41%	
10 - Elctd Ofc	14.82%	6.93%	-	-	-	-	32.75%	31.80%	
11 - Dsptrchr	0.00%	5.00%	-	-	-	-			
14 - Adm/NonUnion	12.35%	5.00%	-	-	-	-	15.04%	13.92%	
15 - Utilities Dr	0.00%	6.00%	-	-	-	-			
20 - Pol Cmnd	19.62%	9.06%	-	-	-	-			
HA - POLC/cler/Dispatch aft 7/1/14	0.00%	0.00%	-	-	-	-			
HB - IAFF ee's hired on/aft 1/1/14	8.56%	0.00%	8.56%	1.24%	9.80%	9.77%	13.37%	12.41%	
HD - POAM on/after 1/1/2015	6.39%	0.00%	6.39%	0.00%	6.39%	6.39%	22.68%	21.24%	
HE - Non-union on/after 1/1/2015	9.28%	0.00%	9.28%	-1.10%	8.18%	8.00%	15.04%	13.92%	
HF - TPOAM on/aft 3/30/15	8.42%	0.00%	8.42%	0.63%	9.05%	8.83%	10.59%	10.10%	
Estimated Monthly Contribution ³									
01 - TPOAM			\$ 2,543	\$ 2,462	\$ 5,005	\$ 4,631			
02 - Pol Ptrl			14,588	28,674	43,262	40,214			
05 - Fire Fght			12,943	9,439	22,382	20,606			
10 - Elctd Ofc			1,077	5,525	6,602	6,452			
11 - Dsptrchr			0	(5,194)	0	0			
14 - Adm/NonUnion			8,555	13,997	22,552	20,540			
15 - Utilities Dr			0	1,279	1,279	1,207			
20 - Pol Cmnd			7,953	58,715	66,668	63,084			
HA - POLC/cler/Dispatch aft 7/1/14			0	(381)	0	0			
HB - IAFF ee's hired on/aft 1/1/14			1,981	288	2,269	2,263			
HD - POAM on/after 1/1/2015			4,819	0	4,819	4,819			
HE - Non-union on/after 1/1/2015			6,809	(810)	5,999	5,867			
HF - TPOAM on/aft 3/30/15			5,910	440	6,350	6,198			

Table 1 (continued)

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions ¹			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribut. Conversion Factor ²
			Employer Normal Cost ⁶	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
HG - Elctd Ofc on/aft 1/1/15	10.54%	0.00%	10.54%	1.53%	12.07%	11.31%	32.75%	31.80%	
Estimated Monthly Contribution³									
HG - Elctd Ofc on/aft 1/1/15			\$ 1,087	\$ 158	\$ 1,245	\$ 1,167			
Total Municipality			\$ 68,265	\$ 114,592	\$ 188,432	\$ 177,048			
Estimated Annual Contribution³			\$ 819,180	\$ 1,375,104	\$ 2,261,184	\$ 2,124,576			

- ¹ The above employer contribution requirements are in addition to the employee contributions, if any.
- ² If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1% because employee contributions may be refunded at termination of employment and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.
- ³ For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (i.e., closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the Appendix.
- ⁴ Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions not to add across.
- ⁵ For linked divisions, the employer will be invoiced the Computed Employer Contribution No Phase-in rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-MERS (6377).
- ⁶ For divisions with a negative employer normal cost, employee contributions cover the normal cost and a portion of the payment of any unfunded accrued liability.

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

Table 2: Benefit Provisions

01 - TPOAM: Closed to new hires, linked to Division HF

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	3.00%	3.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

02 - Pol Ptrl: Closed to new hires, linked to Division HD

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	6.17%	6.17%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

05 - Fire Fght: Closed to new hires, linked to Division HB

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

10 - Elctd Ofc: Closed to new hires, linked to Division HG

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	6.93%	6.93%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

11 - Dsptrchr: Closed to new hires

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

14 - Adm/NonUnion: Closed to new hires, linked to Division HE

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5.00%	5.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)



15 - Utilities Dr: Open Division

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	6.00%	6.00%
Act 88:	Yes (Adopted 10/1/2007)	Yes (Adopted 10/1/2007)

20 - Pol Cmnd: Closed to new hires, linked to Division HC

	2021 Valuation	2020 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	9.06%	9.06%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

HA - POLC/cler/Dispatch aft 7/1/14: Closed to new hires

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

HB - IAFF ee's hired on/aft 1/1/14: Open Division, linked to Division 05

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)



HD - POAM on/after 1/1/2015: Open Division, linked to Division 02

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

HE - Non-union on/after 1/1/2015: Open Division, linked to Division 14

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

HF - TPOAM on/aft 3/30/15: Open Division, linked to Division 01

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

HG - Elctd Ofc on/aft 1/1/15: Open Division, linked to Division 10

	2021 Valuation	2020 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 11/10/2003)	Yes (Adopted 11/10/2003)

Table 3: Participant Summary

Division	2021 Valuation		2020 Valuation		2021 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
01 - TPOAM							
Active Employees	8	\$ 456,298	9	\$ 494,706	46.1	12.5	14.2
Vested Former Employees	9	58,097	9	58,097	46.4	8.0	15.8
Retirees and Beneficiaries	11	104,328	10	86,582	71.2		
Pending Refunds	16		17				
02 - Pol Ptrl							
Active Employees	18	\$ 1,663,929	19	\$ 1,588,149	44.0	18.2	18.6
Vested Former Employees	3	20,014	3	20,014	42.3	4.4	10.8
Retirees and Beneficiaries	10	334,808	9	269,945	58.9		
Pending Refunds	5		5				
05 - Fire Fght							
Active Employees	21	\$ 1,936,785	22	\$ 1,908,680	44.4	17.4	17.9
Vested Former Employees	2	58,674	1	27,754	48.0	15.6	15.6
Retirees and Beneficiaries	5	130,132	5	130,132	61.2		
Pending Refunds	0		2				
10 - Elctd Ofc							
Active Employees	2	\$ 182,318	2	\$ 177,239	65.2	15.6	16.3
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	6	102,501	6	100,876	79.2		
Pending Refunds	1		1				
11 - Dsptchr							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	10	140,505	10	140,505	45.4	11.8	15.4
Retirees and Beneficiaries	1	20,001	1	20,001	61.3		
Pending Refunds	2		5				
14 - Adm/NonUnion							
Active Employees	18	\$ 1,465,873	21	\$ 1,590,762	50.1	14.9	19.6
Vested Former Employees	6	96,040	7	117,203	47.3	9.5	14.5
Retirees and Beneficiaries	26	543,533	22	442,506	68.6		
Pending Refunds	15		17				
15 - Utilities Dr							
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	1	19,167	1	19,167	64.7		
Pending Refunds	0		0				

Table 3 (continued)

Division	2021 Valuation		2020 Valuation		2021 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
20 - Pol Cmnd							
Active Employees	9	\$ 1,033,898	10	\$ 1,055,755	46.7	22.6	24.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	15	664,975	14	581,757	62.2		
Pending Refunds	0		0				
HA - POLC/cler/Dispatch aft 7/1/14							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	2	2,655	2	2,655	37.1	1.9	10.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
HB - IAFF ee's hired on/aft 1/1/14							
Active Employees	2	\$ 148,200	2	\$ 139,956	41.7	5.6	13.5
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
HD - POAM on/after 1/1/2015							
Active Employees	10	\$ 734,074	10	\$ 744,771	28.3	3.6	3.9
Vested Former Employees	1	5,881	0	0	31.6	4.9	4.9
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
HE - Non-union on/after 1/1/2015							
Active Employees	13	\$ 680,667	11	\$ 690,465	45.4	2.8	4.7
Vested Former Employees	5	14,662	0	0	37.3	3.3	6.3
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
HF - TPOAM on/aft 3/30/15							
Active Employees	17	\$ 756,319	17	\$ 731,874	43.5	3.3	3.7
Vested Former Employees	1	1,586	1	1,586	33.4	2.5	4.7
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
HG - Elctd Ofc on/aft 1/1/15							
Active Employees	1	\$ 88,724	1	\$ 86,201	52.0	5.3	5.3
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
Total Municipality							
Active Employees	119	\$ 9,147,085	124	\$ 9,208,558	44.5	12.1	13.7
Vested Former Employees	39	398,114	33	367,814	43.7	8.2	13.0
Retirees and Beneficiaries	75	1,919,445	68	1,650,966	66.6		
Pending Refunds	39		47				
Total Participants	272		272				

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

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

Table 4: Reported Assets (Market Value)

Division	2021 Valuation		2020 Valuation	
	Employer and Retiree ¹	Employee ²	Employer and Retiree ¹	Employee ²
01 - TPOAM	\$ 1,842,025	\$ 277,143	\$ 1,531,833	\$ 317,610
02 - Pol Ptrl	8,358,837	1,743,219	6,921,491	1,777,326
05 - Fire Fght	6,267,370	1,593,904	5,202,482	1,477,935
10 - Elctd Ofc	405,253	297,699	359,751	166,994
11 - Dsptchr	994,616	305,708	854,079	308,090
14 - Adm/NonUnion	7,414,979	1,349,430	6,481,154	1,287,062
15 - Utilities Dr	154,085	0	139,589	0
20 - Pol Cmnd	7,323,458	1,369,044	6,058,756	1,417,601
HA - POLC/cler/Dispatch aft 7/1/14	34,691	0	30,415	0
HB - IAFF ee's hired on/aft 1/1/14	62,226	0	45,240	0
HD - POAM on/after 1/1/2015	293,976	0	206,257	0
HE - Non-union on/after 1/1/2015	361,271	0	253,494	0
HF - TPOAM on/aft 3/30/15	271,811	0	202,717	0
HG - Elctd Ofc on/aft 1/1/15	52,792	0	39,140	0
S1 - Surplus Unassociated	1,459,150	0	1,055,466	0
Municipality Total³	\$ 35,296,541	\$ 6,936,146	\$ 29,381,864	\$ 6,752,618
Combined Assets³	\$42,232,686		\$36,134,482	

¹ Reserve for Employer Contributions and Benefit Payments.

² Reserve for Employee Contributions.

³ Totals may not add due to rounding.

The December 31, 2021 valuation assets (actuarial value of assets) are equal to 0.998523 times the reported market value of assets (compared to 0.972357 as of December 31, 2020). 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, 2023.

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						
2011	\$ 784,130	\$ 0	\$ 413,860	\$ 972,208	\$ (482,536)	\$ (39,475)	\$ 5,514	\$ 16,483,524
2012	751,402	0	415,425	929,886	(580,364)	(51,588)	26,952	17,975,237
2013	815,893	0	444,508	1,210,749	(715,656)	(15,986)	0	19,714,745
2014	808,039	0	427,000	1,197,131	(817,351)	(66,658)	0	21,262,906
2015	992,973	0	433,629	1,178,970	(911,658)	(2,733)	26,929	22,981,016
2016	1,026,766	200,000	433,666	1,382,167	(982,566)	(33,253)	216,138	25,223,934
2017	1,246,097	155,036	415,787	1,654,468	(1,094,800)	(39,880)	561,312	28,121,954
2018	1,275,922	212,042	386,496	1,089,670	(1,374,077)	(5,744)	3,267	29,709,530
2019	1,360,962	207,050	413,219	1,504,552	(1,468,561)	(16,386)	101,098	31,811,464
2020	1,542,515	138,261	405,031	2,726,468	(1,548,242)	(68,638)	128,756	35,135,615
2021	1,851,091	240,000	398,352	6,064,741	(1,789,906)	(23,811)	294,225	42,170,307

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, 2021**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - TPOAM	\$ 946,096	\$ 434,498	\$ 1,071,618	\$ 37,228	\$ 2,489,440	\$ 2,116,038	85.0%	\$ 373,402
02 - Pol Ptrl	8,704,110	91,182	5,516,181	22,427	14,333,900	10,087,135	70.4%	4,246,765
05 - Fire Fght	7,320,914	373,394	1,578,463	0	9,272,771	7,849,663	84.7%	1,423,108
10 - Elctd Ofc	633,951	0	872,003	22,787	1,528,741	701,913	45.9%	826,828
11 - Dsptrchr	0	670,590	236,354	11,869	918,813	1,298,403	141.3%	(379,590)
14 - Adm/NonUnion	4,526,848	461,316	5,770,174	94,622	10,852,960	8,751,464	80.6%	2,101,496
15 - Utilities Dr	0	0	247,901	0	247,901	153,858	62.1%	94,043
20 - Pol Cmnd	8,069,094	0	9,359,271	0	17,428,365	8,679,663	49.8%	8,748,702
HA - POLC/cler/Dispatch aft 7/1/14	0	6,171	0	0	6,171	34,640	561.3%	(28,469)
HB - IAFF ee's hired on/aft 1/1/14	104,564	0	0	0	104,564	62,134	59.4%	42,430
HD - POAM on/aft 1/1/2015	277,637	10,149	0	0	287,786	293,541	102.0%	(5,755)
HE - Non-union on/aft 1/1/2015	231,504	33,553	0	0	265,057	360,737	136.1%	(95,680)
HF - TPOAM on/aft 3/30/15	323,987	2,926	0	0	326,913	271,409	83.0%	55,504
HG - Elctd Ofc on/aft 1/1/15	72,848	0	0	0	72,848	52,714	72.4%	20,134
S1 - Surplus Unassociated	0	0	0	0	0	1,456,995		(1,456,995)
Total	\$ 31,211,553	\$ 2,083,779	\$ 24,651,965	\$ 188,933	\$ 58,136,230	\$ 42,170,307	72.5%	\$ 15,965,923

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 HB, 05	\$ 7,425,478	\$ 373,394	\$ 1,578,463	\$ 0	\$ 9,377,335	\$ 7,911,797	84.4%	\$ 1,465,538
Linked Divisions HD, 02	8,981,747	101,331	5,516,181	22,427	14,621,686	10,380,676	71.0%	4,241,010
Linked Divisions HE, 14	4,758,352	494,869	5,770,174	94,622	11,118,017	9,112,201	82.0%	2,005,816
Linked Divisions HF, 01	1,270,083	437,424	1,071,618	37,228	2,816,353	2,387,447	84.8%	428,906
Linked Divisions HG, 10	706,799	0	872,003	22,787	1,601,589	754,627	47.1%	846,962

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

The December 31, 2021 valuation assets (actuarial value of assets) are equal to 0.998523 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
2007	\$ 14,059,796	\$ 10,278,963	73%	\$ 3,780,833
2008	15,441,447	11,515,448	75%	3,925,999
2009	16,665,216	12,828,020	77%	3,837,196
2010	18,841,079	14,829,823	79%	4,011,256
2011	21,644,476	16,483,524	76%	5,160,952
2012	23,384,220	17,975,237	77%	5,408,983
2013	26,862,373	19,714,745	73%	7,147,628
2014	28,683,079	21,262,906	74%	7,420,173
2015	32,970,609	22,981,016	70%	9,989,593
2016	35,375,796	25,223,934	71%	10,151,862
2017	38,319,574	28,121,954	73%	10,197,620
2018	41,097,409	29,709,530	72%	11,387,879
2019	45,783,766	31,811,464	69%	13,972,302
2020	50,689,855	35,135,615	69%	15,554,240
2021	58,136,230	42,170,307	73%	15,965,923

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 - TPOAM

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 1,072,912	\$ 1,139,443	106%	\$ (66,531)
2012	1,061,861	1,165,917	110%	(104,056)
2013	1,192,711	1,244,550	104%	(51,839)
2014	1,307,912	1,335,534	102%	(27,622)
2015	1,594,249	1,418,774	89%	175,475
2016	1,783,908	1,560,966	88%	222,942
2017	1,852,461	1,675,550	90%	176,911
2018	1,979,876	1,703,442	86%	276,434
2019	2,160,659	1,777,804	82%	382,855
2020	2,226,709	1,798,318	81%	428,391
2021	2,489,440	2,116,038	85%	373,402

Notes: Actuarial assumptions were revised for the 2011, 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 ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	17	\$ 602,922	4.51%	4.00%
2012	15	528,807	4.17%	3.00%
2013	20	731,576	5.40%	3.00%
2014	20	729,745	6.72%	2.00%
2015	20	822,799	\$ 5,946	2.00%
2016	16	741,752	\$ 5,707	2.00%
2017	13	645,141	\$ 5,039	2.00%
2018	11	557,979	\$ 5,256	2.00%
2019	11	581,758	\$ 5,693	3.00%
2020	9	494,706	\$ 5,400	3.00%
2021	8	456,298	\$ 5,005	3.00%

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

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

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

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

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

Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 4,885,018	\$ 3,652,191	75%	\$ 1,232,827
2012	5,203,705	3,893,073	75%	1,310,632
2013	6,076,136	4,444,933	73%	1,631,203
2014	6,051,815	4,665,236	77%	1,386,579
2015	6,849,961	5,069,260	74%	1,780,701
2016	7,436,278	5,692,248	77%	1,744,030
2017	8,240,320	6,650,921	81%	1,589,399
2018	9,121,451	6,987,700	77%	2,133,751
2019	10,446,427	7,498,991	72%	2,947,436
2020	12,075,357	8,458,355	70%	3,617,002
2021	14,333,900	10,087,135	70%	4,246,765

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

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

Table 9-02: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	30	\$ 1,860,017	11.47%	6.17%
2012	31	1,908,525	11.59%	6.17%
2013	29	1,997,648	12.58%	6.17%
2014	25	1,686,802	\$ 17,642	6.17%
2015	24	1,680,414	\$ 21,983	6.17%
2016	23	1,689,595	\$ 21,924	6.17%
2017	22	1,648,289	\$ 20,864	6.17%
2018	21	1,609,322	\$ 24,648	6.17%
2019	20	1,594,550	\$ 30,701	6.17%
2020	19	1,588,149	\$ 36,250	6.17%
2021	18	1,663,929	\$ 43,262	6.17%

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 - Fire Fight

Table 8-05: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 2,949,361	\$ 2,489,043	84%	\$ 460,318
2012	3,288,692	2,821,512	86%	467,180
2013	3,787,941	3,230,511	85%	557,430
2014	4,136,363	3,608,244	87%	528,119
2015	4,794,809	3,994,893	83%	799,916
2016	5,256,937	4,546,416	87%	710,521
2017	5,907,246	5,046,262	85%	860,984
2018	6,491,784	5,319,257	82%	1,172,527
2019	7,447,913	5,856,050	79%	1,591,863
2020	8,035,451	6,495,750	81%	1,539,701
2021	9,272,771	7,849,663	85%	1,423,108

Notes: Actuarial assumptions were revised for the 2011, 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 ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	23	\$ 1,579,022	7.84%	5.00%
2012	23	1,614,967	7.96%	5.00%
2013	26	1,792,762	8.16%	5.00%
2014	25	1,734,496	\$ 11,804	5.00%
2015	25	1,767,537	\$ 14,521	5.00%
2016	25	1,772,309	\$ 13,921	5.00%
2017	24	1,781,459	\$ 15,124	5.00%
2018	24	1,867,173	\$ 17,689	5.00%
2019	24	1,965,075	\$ 20,982	5.00%
2020	22	1,908,680	\$ 21,298	5.00%
2021	21	1,936,785	\$ 22,382	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 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 825,575	\$ 394,931	48%	\$ 430,644
2012	867,718	401,319	46%	466,399
2013	924,647	419,643	45%	505,004
2014	970,282	439,268	45%	531,014
2015	1,086,334	457,917	42%	628,417
2016	1,163,655	484,937	42%	678,718
2017	1,195,603	509,129	43%	686,474
2018	1,228,626	489,637	40%	738,989
2019	1,297,189	489,623	38%	807,566
2020	1,327,749	512,184	39%	815,565
2021	1,528,741	701,913	46%	826,828

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

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

Table 9-10: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	3	\$ 234,513	18.10%	6.93%
2012	3	234,513	19.87%	6.93%
2013	3	243,533	20.46%	6.93%
2014	3	235,013	21.80%	6.93%
2015	3	235,634	26.71%	6.93%
2016	2	164,298	\$ 4,423	6.93%
2017	2	164,902	\$ 4,570	6.93%
2018	2	168,193	\$ 5,065	6.93%
2019	2	172,189	\$ 5,783	6.93%
2020	2	177,239	\$ 6,470	6.93%
2021	2	182,318	\$ 6,602	6.93%

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 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 480,487	\$ 541,624	113%	\$ (61,137)
2012	527,855	611,780	116%	(83,925)
2013	591,020	684,209	116%	(93,189)
2014	637,549	735,554	115%	(98,005)
2015	781,066	801,787	103%	(20,721)
2016	808,497	880,042	109%	(71,545)
2017	728,202	969,613	133%	(241,411)
2018	653,614	1,002,715	153%	(349,101)
2019	747,003	1,052,560	141%	(305,557)
2020	827,033	1,130,044	137%	(303,011)
2021	918,813	1,298,403	141%	(379,590)

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

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

Table 9-11: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	9	\$ 395,048	2.54%	5.00%
2012	9	398,795	1.73%	5.00%
2013	8	381,680	1.52%	5.00%
2014	7	346,807	\$ 281	5.00%
2015	7	378,771	\$ 1,353	5.00%
2016	7	355,374	\$ 784	5.00%
2017	3	158,953	\$ 0	5.00%
2018	0	0	\$ 0	5.00%
2019	0	0	\$ 0	5.00%
2020	0	0	\$ 0	5.00%
2021	0	0	\$ 0	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 14 - Adm/NonUnion

Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 4,240,151	\$ 4,384,685	103%	\$ (144,534)
2012	4,778,491	4,815,785	101%	(37,294)
2013	5,298,463	5,273,961	100%	24,502
2014	5,796,065	5,539,436	96%	256,629
2015	6,645,837	5,930,022	89%	715,815
2016	7,123,332	6,394,697	90%	728,635
2017	7,629,452	6,795,743	89%	833,709
2018	8,022,651	6,834,485	85%	1,188,166
2019	8,635,547	6,975,298	81%	1,660,249
2020	9,676,878	7,553,479	78%	2,123,399
2021	10,852,960	8,751,464	81%	2,101,496

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

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

Table 9-14: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	33	\$ 1,942,390	5.35%	5.00%
2012	34	1,908,244	5.52%	5.00%
2013	34	2,026,959	6.46%	5.00%
2014	35	2,111,436	\$ 11,872	5.00%
2015	32	2,025,795	\$ 15,246	5.00%
2016	26	1,723,713	\$ 12,887	5.00%
2017	23	1,619,640	\$ 13,467	5.00%
2018	20	1,478,235	\$ 15,033	5.00%
2019	20	1,548,740	\$ 18,497	5.00%
2020	21	1,590,762	\$ 22,634	5.00%
2021	18	1,465,873	\$ 22,552	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 15 - Utilities Dr

Table 8-15: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 233,539	\$ 192,594	83%	\$ 40,945
2012	232,326	179,491	77%	52,835
2013	231,296	171,997	74%	59,299
2014	229,922	165,260	72%	64,662
2015	236,208	157,220	67%	78,988
2016	234,687	149,707	64%	84,980
2017	233,070	145,143	62%	87,927
2018	230,975	138,013	60%	92,962
2019	237,913	133,660	56%	104,253
2020	241,451	135,730	56%	105,721
2021	247,901	153,858	62%	94,043

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

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

Table 9-15: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 227	0.00%
2012	0	0	\$ 295	0.00%
2013	0	0	\$ 351	0.00%
2014	0	0	\$ 411	0.00%
2015	0	0	\$ 566	0.00%
2016	0	0	\$ 660	6.00%
2017	0	0	\$ 761	6.00%
2018	0	0	\$ 924	6.00%
2019	0	0	\$ 1,209	6.00%
2020	0	0	\$ 1,305	6.00%
2021	0	0	\$ 1,279	6.00%

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 8-20: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 6,957,433	\$ 3,689,013	53%	\$ 3,268,420
2012	7,423,572	4,086,360	55%	3,337,212
2013	8,760,159	4,244,941	49%	4,515,218
2014	9,553,198	4,773,789	50%	4,779,409
2015	10,956,409	5,117,852	47%	5,838,557
2016	11,507,522	5,420,558	47%	6,086,964
2017	12,342,206	6,081,797	49%	6,260,409
2018	13,004,017	6,255,059	48%	6,748,958
2019	14,200,927	6,605,649	47%	7,595,278
2020	15,418,653	7,269,687	47%	8,148,966
2021	17,428,365	8,679,663	50%	8,748,702

Notes: Actuarial assumptions were revised for the 2011, 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 ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	8	\$ 646,496	33.90%	9.06%
2012	9	714,115	34.63%	9.06%
2013	8	690,649	47.79%	9.06%
2014	10	830,122	\$ 30,807	9.06%
2015	11	958,619	\$ 40,054	9.06%
2016	11	989,066	\$ 41,874	9.06%
2017	10	930,835	\$ 43,623	9.06%
2018	10	968,461	\$ 48,229	9.06%
2019	10	1,013,120	\$ 56,380	9.06%
2020	10	1,055,755	\$ 61,569	9.06%
2021	9	1,033,898	\$ 66,668	9.06%

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-HA: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
2012	0	0	0%	0
2013	0	0	0%	0
2014	(27)	585	0%	(612)
2015	0	2,367	0%	(2,367)
2016	2,639	6,227	236%	(3,588)
2017	5,813	16,633	286%	(10,820)
2018	3,795	20,940	552%	(17,145)
2019	4,645	27,292	588%	(22,647)
2020	5,158	29,574	573%	(24,416)
2021	6,171	34,640	561%	(28,469)

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

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

Table 9-HA: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	1	33,995	5.99%	0.00%
2015	1	35,002	5.16%	0.00%
2016	2	87,059	5.96%	0.00%
2017	2	90,378	\$ 389	0.00%
2018	0	0	\$ 0	0.00%
2019	0	0	\$ 0	0.00%
2020	0	0	\$ 0	0.00%
2021	0	0	\$ 0	0.00%

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 HB - IAFF ee's hired on/aft 1/1/14

Table 8-HB: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	3,331	1,977	59%	1,354
2016	8,263	5,924	72%	2,339
2017	18,157	12,393	68%	5,764
2018	31,344	20,432	65%	10,912
2019	46,957	30,656	65%	16,301
2020	75,551	43,989	58%	31,562
2021	104,564	62,134	59%	42,430

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

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

Table 9-HB: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	1	45,728	6.41%	0.00%
2016	1	51,875	6.45%	0.00%
2017	2	106,206	6.72%	0.00%
2018	2	116,297	6.91%	0.00%
2019	2	124,680	7.08%	0.00%
2020	2	139,956	8.95%	0.00%
2021	2	148,200	9.80%	0.00%

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 HD - POAM on/after 1/1/2015

Table 8-HD: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	11,692	13,467	115%	(1,775)
2016	18,222	29,847	164%	(11,625)
2017	47,316	54,030	114%	(6,714)
2018	88,387	83,331	94%	5,056
2019	168,302	134,230	80%	34,072
2020	246,476	200,556	81%	45,920
2021	287,786	293,541	102%	(5,755)

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

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

Table 9-HD: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	5	240,367	6.79%	0.00%
2016	5	216,567	6.24%	0.00%
2017	6	315,041	6.36%	0.00%
2018	10	539,542	6.62%	0.00%
2019	10	670,320	6.88%	0.00%
2020	10	744,771	6.25%	0.00%
2021	10	734,074	6.39%	0.00%

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 HE - Non-union on/after 1/1/2015

Table 8-HE: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	10,713	12,882	120%	(2,169)
2016	19,752	39,860	202%	(20,108)
2017	74,362	102,994	139%	(28,632)
2018	139,864	178,396	128%	(38,532)
2019	213,187	242,051	114%	(28,864)
2020	229,911	246,487	107%	(16,576)
2021	265,057	360,737	136%	(95,680)

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

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

Table 9-HE: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	5	218,662	7.28%	0.00%
2016	9	391,660	8.16%	0.00%
2017	14	679,581	7.50%	0.00%
2018	13	678,770	7.35%	0.00%
2019	13	695,791	7.72%	0.00%
2020	11	690,465	8.49%	0.00%
2021	13	680,667	8.18%	0.00%

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-HF: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	2,598	0%	(2,598)
2016	12,104	12,505	103%	(401)
2017	37,202	38,557	104%	(1,355)
2018	83,035	63,874	77%	19,161
2019	146,756	122,710	84%	24,046
2020	252,651	197,114	78%	55,537
2021	326,913	271,409	83%	55,504

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

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

Table 9-HF: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	2	66,861	9.14%	0.00%
2016	7	241,720	7.44%	0.00%
2017	11	411,892	7.15%	0.00%
2018	15	541,871	7.76%	0.00%
2019	18	667,415	7.56%	0.00%
2020	17	731,874	8.27%	0.00%
2021	17	756,319	9.05%	0.00%

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-HG: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0	0%	\$ 0
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	8,164	23,189	284%	(15,025)
2018	17,990	18,194	101%	(204)
2019	30,341	27,271	90%	3,070
2020	50,827	38,058	75%	12,769
2021	72,848	52,714	72%	20,134

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

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

Table 9-HG: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2011	0	\$ 0	\$ 0	0.00%
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	1	80,142	8.15%	0.00%
2018	1	81,745	8.84%	0.00%
2019	1	83,643	9.06%	0.00%
2020	1	86,201	10.92%	0.00%
2021	1	88,724	12.07%	0.00%

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 S1 - Surplus Unassociated

Table 8-S1: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	\$ 0	\$ 0		\$ 0
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	594,055		(594,055)
2019	0	837,619		(837,619)
2020	0	1,026,290		(1,026,290)
2021	0	1,456,995		(1,456,995)

Notes: Actuarial assumptions were revised for the 2011, 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 - TPOAM

Table 10-01: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 175,475	23	\$ 201,496	17	\$ 16,344
(Gain)/Loss	12/31/2016	22,656	22	24,346	17	1,980
(Gain)/Loss	12/31/2017	(49,510)	21	(52,863)	17	(4,284)
(Gain)/Loss	12/31/2018	101,850	20	108,244	17	8,784
(Gain)/Loss	12/31/2019	50,682	19	53,549	17	4,344
Assumption	12/31/2019	54,255	19	56,044	17	4,548
Amendment	12/31/2019	(7,002)	19	(7,400)	17	(600)
Experience	12/31/2020	38,850	18	41,313	17	3,348
Experience	12/31/2021	(56,673)	17	(60,640)	17	(4,920)
Total				\$ 364,089		\$ 29,544

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-02: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,780,701	23	\$ 1,857,783	17	\$ 150,660
(Gain)/Loss	12/31/2016	(102,473)	22	(110,134)	17	(8,928)
(Gain)/Loss	12/31/2017	(162,626)	21	(173,619)	17	(14,076)
(Gain)/Loss	12/31/2018	545,243	20	579,499	17	46,992
(Gain)/Loss	12/31/2019	410,699	19	433,969	17	35,196
Assumption	12/31/2019	355,074	19	365,285	17	29,628
Experience	12/31/2020	617,182	18	656,350	17	53,232
Experience	12/31/2021	592,203	17	633,657	17	51,384
Total				\$ 4,242,790		\$ 344,088

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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 - Fire Fight

Table 10-05: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 799,916	23	\$ 843,069	17	\$ 68,364
(Gain)/Loss	12/31/2016	(127,431)	22	(136,964)	17	(11,112)
(Gain)/Loss	12/31/2017	153,111	21	163,472	17	13,260
(Gain)/Loss	12/31/2018	294,954	20	313,480	17	25,428
(Gain)/Loss	12/31/2019	235,662	19	249,002	17	20,196
Assumption	12/31/2019	157,711	19	161,163	17	13,068
Experience	12/31/2020	(78,924)	18	(83,939)	17	(6,804)
Experience	12/31/2021	(105,197)	17	(112,561)	17	(9,132)
Total				\$ 1,396,722		\$ 113,268

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-10: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 628,417	23	\$ 650,647	17	\$ 52,764
(Gain)/Loss	12/31/2016	32,200	22	34,604	17	2,808
(Gain)/Loss	12/31/2017	(507)	21	(537)	17	(48)
(Gain)/Loss	12/31/2018	47,965	20	50,969	17	4,128
(Gain)/Loss	12/31/2019	30,141	19	31,850	17	2,580
Assumption	12/31/2019	31,711	19	30,555	17	2,484
Experience	12/31/2020	4,753	18	5,054	17	408
Experience	12/31/2021	13,572	17	14,522	17	1,176
Total				\$ 817,664		\$ 66,300

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-11: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (20,721)	10	\$ (5,825)	9	\$ (780)
(Gain)/Loss	12/31/2016	(63,538)	15	(59,174)	10	(7,224)
(Gain)/Loss	12/31/2017	(165,343)	10	(131,584)	6	(24,900)
(Gain)/Loss	12/31/2018	(96,287)	10	(84,604)	7	(13,968)
(Gain)/Loss	12/31/2019	(47,492)	10	(44,991)	8	(6,624)
Assumption	12/31/2019	46,668	10	45,440	8	6,684
Experience	12/31/2020	(18,102)	10	(18,361)	9	(2,448)
Experience	12/31/2021	(100,058)	10	(107,062)	10	(13,068)
Total				\$ (406,161)		\$ (62,328)

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

Division 14 - Adm/NonUnion

Table 10-14: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 715,815	23	\$ 774,474	17	\$ 62,808
(Gain)/Loss	12/31/2016	(41,144)	22	(44,231)	17	(3,588)
(Gain)/Loss	12/31/2017	101,618	21	108,500	17	8,796
(Gain)/Loss	12/31/2018	341,688	20	363,164	17	29,448
(Gain)/Loss	12/31/2019	223,468	19	236,120	17	19,152
Assumption	12/31/2019	219,140	19	226,046	17	18,336
Experience	12/31/2020	432,794	18	460,264	17	37,320
Experience	12/31/2021	(49,595)	17	(53,067)	17	(4,308)
Total				\$ 2,071,270		\$ 167,964

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

Division 15 - Utilities Dr

Table 10-15: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 78,988	16	\$ 59,059	6	\$ 11,172
(Gain)/Loss	12/31/2016	4,991	14	4,023	6	756
(Gain)/Loss	12/31/2017	3,415	12	2,817	6	528
(Gain)/Loss	12/31/2018	6,445	10	5,659	7	936
(Gain)/Loss	12/31/2019	4,786	10	4,530	8	672
Assumption	12/31/2019	8,800	10	8,010	8	1,176
Experience	12/31/2020	5,297	10	5,370	9	720
Experience	12/31/2021	(4,711)	10	(5,041)	10	(612)
Total				\$ 84,427		\$ 15,348

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-20: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 5,838,557	23	\$ 6,031,119	17	\$ 489,096
(Gain)/Loss	12/31/2016	92,446	22	99,370	17	8,064
(Gain)/Loss	12/31/2017	114,535	21	122,287	17	9,912
(Gain)/Loss	12/31/2018	438,629	20	466,189	17	37,812
(Gain)/Loss	12/31/2019	266,945	19	282,057	17	22,872
Assumption	12/31/2019	517,807	19	520,219	17	42,192
Experience	12/31/2020	507,851	18	540,082	17	43,800
Experience	12/31/2021	585,874	17	626,885	17	50,832
Total				\$ 8,688,208		\$ 704,580

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-HA: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (2,367)	10	\$ (1,942)	9	\$ (264)
(Gain)/Loss	12/31/2016	(938)	15	(867)	10	(108)
(Gain)/Loss	12/31/2017	(7,290)	10	(5,799)	6	(1,092)
(Gain)/Loss	12/31/2018	(5,911)	10	(5,197)	7	(864)
(Gain)/Loss	12/31/2019	(8,223)	10	(7,788)	8	(1,152)
Assumption	12/31/2019	555	10	613	8	96
Experience	12/31/2020	(3,221)	10	(3,264)	9	(432)
Experience	12/31/2021	(5,811)	10	(6,218)	10	(756)
Total				\$ (30,462)		\$ (4,572)

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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 HB - IAFF ee's hired on/aft 1/1/14

Table 10-HB: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,354	23	\$ 1,461	17	\$ 120
(Gain)/Loss	12/31/2016	881	22	952	17	72
(Gain)/Loss	12/31/2017	3,343	21	3,573	17	288
(Gain)/Loss	12/31/2018	4,863	20	5,158	17	420
(Gain)/Loss	12/31/2019	4,929	19	5,208	17	420
Assumption	12/31/2019	82	19	28	17	0
Experience	12/31/2020	14,922	18	15,866	17	1,284
Experience	12/31/2021	9,777	17	10,461	17	852
Total				\$ 42,707		\$ 3,456

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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 HD - POAM on/after 1/1/2015

Table 10-HD: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Experience	12/31/2021	\$ (9,966)	15	\$ (10,664)	15	\$ (948)
Total				\$ (10,664)		\$ (948)

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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 HE - Non-union on/after 1/1/2015

Table 10-HE: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ (2,169)	10	\$ (1,689)	9	\$ (228)
(Gain)/Loss	12/31/2016	(17,771)	15	(16,552)	10	(2,016)
(Gain)/Loss	12/31/2017	(7,252)	15	(7,034)	11	(792)
(Gain)/Loss	12/31/2018	(9,738)	15	(9,757)	12	(1,032)
(Gain)/Loss	12/31/2019	8,217	15	8,413	13	828
Assumption	12/31/2019	1,639	15	1,787	13	180
Experience	12/31/2020	10,530	15	11,065	14	1,032
Experience	12/31/2021	(80,899)	15	(86,562)	15	(7,692)
Total				\$ (100,329)		\$ (9,720)

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-HF: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2018	\$ 19,346	15	\$ 19,393	12	\$ 2,040
(Gain)/Loss	12/31/2019	1,522	15	1,561	13	156
Assumption	12/31/2019	1,685	15	1,650	13	168
Experience	12/31/2020	31,652	15	33,279	14	3,108
Experience	12/31/2021	(1,955)	15	(2,092)	15	(192)
Total				\$ 53,791		\$ 5,280

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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.

Table 10-HG: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2023		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
(Gain)/Loss	12/31/2018	\$ 1,183	15	\$ 1,196	12	\$ 132
(Gain)/Loss	12/31/2019	1,317	15	1,346	13	132
Assumption	12/31/2019	482	15	482	13	48
Experience	12/31/2020	9,586	15	10,077	14	948
Experience	12/31/2021	6,695	15	7,164	15	636
Total				\$ 20,265		\$ 1,896

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2021 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2021 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:	12/31/2021
Measurement Date of the Total Pension Liability (TPL):	12/31/2021
At 12/31/2021, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	75
Inactive employees entitled to but not yet receiving benefits (including refunds):	78
Active employees:	<u>119</u>
	272
Total Pension Liability as of 12/31/2020 measurement date:	\$ 49,029,521
Total Pension Liability as of 12/31/2021 measurement date:	\$ 56,213,817
Service Cost for the year ending on the 12/31/2021 measurement date:	\$ 1,031,943
Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ 1,731,393
- Changes in assumptions ² :	\$ 2,538,141
Average expected remaining service lives of all employees (active and inactive):	4

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

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

Covered employee payroll (Needed for Required Supplementary Information):	\$ 9,147,085
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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 12/31/2021:	\$ 8,304,208	\$ 0	\$ (6,807,020)

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.

Actuarial Valuation Date:	12/31/2021
Measurement Date of the Total Pension Liability (TPL):	12/31/2022
At 12/31/2021, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	75
Inactive employees entitled to but not yet receiving benefits (including refunds):	78
Active employees:	<u>119</u>
	272

Total Pension Liability as of 12/31/2021 measurement date:	\$ 51,802,372
Total Pension Liability as of 12/31/2022 measurement date:	\$ 59,166,479
Service Cost for the year ending on the 12/31/2022 measurement date:	\$ 1,041,053
Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ 2,015,678
- Changes in assumptions ² :	\$ 2,629,243
Average expected remaining service lives of all employees (active and inactive):	4

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

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

Covered employee payroll (Needed for Required Supplementary Information):	\$ 9,147,085
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Note: Covered employee payroll may differ from the GASB Statement No. 68 definition.

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

	1% Decrease <u>(6.25%)</u>	Current Discount Rate <u>(7.25%)</u>	1% Increase <u>(8.25%)</u>
Change in Net Pension Liability as of 12/31/2022:	\$ 8,590,899	\$ 0	\$ (7,054,957)

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 - TPOAM

1/1/2019	Participant Contribution Rate 3%
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2014	Member Contribution Rate 2.00%
1/1/2012	Member Contribution Rate 3.00%
1/1/2011	Member Contribution Rate 4.00%
1/1/2004	Benefit B-2
11/10/2003	Covered by Act 88
7/11/1995	Blanket Resolution (All Service)
8/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/1991	10 Year Vesting
8/1/1991	Benefit C-2/Base B-1
8/1/1991	Member Contribution Rate 5.00%
8/1/1991	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 - Pol Ptrl

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2010	E2 2.5% COLA for future retirees (12/01/2009)
12/1/2009	Benefit F50 (With 25 Years of Service)
12/1/2009	Member Contribution Rate 6.17%
12/1/2006	Benefit B-3 (80% max)
8/1/2006	Temporary Benefit B-3 (80% max) (08/01/2006 - 09/30/2006)
8/1/2006	E2 2.5% Window COLA for future retirees (08/01/2006) to (09/30/2006)
11/10/2003	Covered by Act 88
1/1/2001	Benefit B-2
7/11/1995	Blanket Resolution (All Service)
8/1/1992	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/1992	10 Year Vesting
8/1/1992	Benefit C-2/Base B-1
8/1/1992	Benefit F55 (With 15 Years of Service)
8/1/1992	Member Contribution Rate 5.00%
8/1/1991	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 - Fire Fght

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2007	Benefit B-3 (80% max)
11/10/2003	Covered by Act 88
3/1/2003	Benefit B-2
7/11/1995	Blanket Resolution (All Service)

05 - Fire Fight

8/1/1992	Day of work defined as 96 Hours a Month for All employees.
8/1/1992	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/1992	10 Year Vesting
8/1/1992	Benefit C-2/Base B-1
8/1/1992	Benefit F55 (With 15 Years of Service)
8/1/1992	Member Contribution Rate 5.00%
8/1/1991	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 - Elctd Ofc

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2005	E2 2.5% COLA for future retirees (11/01/2004)
11/10/2003	Covered by Act 88
5/1/1996	Benefit B-3 (80% max)
5/1/1996	Member Contribution Rate 6.93%
4/30/1996	Member Contribution Rate 0.00%
4/1/1996	2.0% multiplier (80% max)
7/11/1995	Blanket Resolution (All Service)
8/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/1991	8 Year Vesting
8/1/1991	Benefit B-2
8/1/1991	Member Contribution Rate 5.00%
8/1/1991	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 - Dsptchr

12/1/2016	Service Credit Purchase Estimates - Yes
12/1/2009	Benefit B-3 (80% max)
11/10/2003	Covered by Act 88
1/1/2003	Benefit B-2
7/11/1995	Blanket Resolution (All Service)
10/1/1992	Benefit FAC-3 (3 Year Final Average Compensation)
10/1/1992	10 Year Vesting
10/1/1992	Benefit C-2/Base B-1
10/1/1992	Member Contribution Rate 5.00%
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

14 - Adm/NonUnion

12/1/2016	Service Credit Purchase Estimates - Yes
8/1/2008	Member Contribution Rate 5.00%
8/1/2005	Temporary 25 Years & Out (08/01/2005 - 11/03/2005)
1/1/2005	Benefit B-3 (80% max)
1/1/2005	Member Contribution Rate 6.00%
11/10/2003	Covered by Act 88
1/1/2000	Benefit FAC-3 (3 Year Final Average Compensation)



14 - Adm/NonUnion

1/1/2000	10 Year Vesting
1/1/2000	Benefit B-2
1/1/2000	Member Contribution Rate 5.00%
7/11/1995	Blanket Resolution (All Service)
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

15 - Utilities Dr

12/1/2020	Non-Accelerated Amortization
12/31/2018	Accelerated to 5-year Amortization
12/1/2016	Service Credit Purchase Estimates - Yes
10/1/2007	Blanket Resolution (All Service)
10/1/2007	Covered by Act 88
10/1/2007	Benefit FAC-3 (3 Year Final Average Compensation)
10/1/2007	10 Year Vesting
10/1/2007	Benefit B-3 (80% max)
10/1/2007	Benefit F55 (With 25 Years of Service)
10/1/2007	Member Contribution Rate 6.00%
11/10/2003	Covered by Act 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

20 - Pol Cmnd

12/1/2016	Service Credit Purchase Estimates - Yes
10/1/2009	Temporary 20 Years & Out (10/01/2009 - 01/31/2010)
2/1/2007	Member Contribution Rate 9.06%
7/1/2005	Member Contribution Rate 10.06%
11/10/2003	Covered by Act 88
1/1/2001	E2 2.5% COLA for future retirees (01/01/2001)
1/1/1999	Benefit B-4 (80% max)
1/1/1999	Benefit F50 (With 25 Years of Service)
1/1/1999	Member Contribution Rate 11.06%
7/11/1995	Blanket Resolution (All Service)
6/1/1992	Benefit FAC-3 (3 Year Final Average Compensation)
6/1/1992	10 Year Vesting
6/1/1992	Benefit C-2/Base B-1
6/1/1992	Benefit F55 (With 15 Years of Service)
6/1/1992	Member Contribution Rate 5.00%
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

HA - POLC/cler/Dispatch aft 7/1/14

7/1/2014	Day of work defined as 8 Hours a Day for All employees.
7/1/2014	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/2014	6 Year Vesting
7/1/2014	1.5% Multiplier



HA - POLC/cler/Dispatch aft 7/1/14

11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

HB - IAFF ee's hired on/aft 1/1/14

1/1/2014	Day of work defined as 96 Hours a Month for All employees.
1/1/2014	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2014	6 Year Vesting
1/1/2014	1.5% Multiplier
1/1/2014	Benefit F55 (With 25 Years of Service)
11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

HD - POAM on/after 1/1/2015

1/1/2015	Day of work defined as 8 Hours a Day for All employees.
1/1/2015	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2015	6 Year Vesting
1/1/2015	1.5% Multiplier
1/1/2015	Benefit F55 (With 25 Years of Service)
11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

HE - Non-union on/after 1/1/2015

1/1/2015	Day of work defined as 8 Hours a Day for All employees.
1/1/2015	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2015	6 Year Vesting
1/1/2015	1.5% Multiplier
11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

HF - TPOAM on/aft 3/30/15

4/1/2015	Day of work defined as 8 Hours a Day for All employees.
4/1/2015	Benefit FAC-3 (3 Year Final Average Compensation)
4/1/2015	6 Year Vesting
4/1/2015	1.5% Multiplier
11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

HG - Elctd Ofc on/aft 1/1/15

1/1/2015	Day of work defined as 8 Hours a Day for All employees.
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HG - Elctd Ofc on/aft 1/1/15

1/1/2015	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2015	Non Standard Compensation Definition
1/1/2015	6 Year Vesting
1/1/2015	1.5% Multiplier
11/10/2003	Covered by ACT 88
8/1/1991	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

S1 - Surplus Unassociated

8/1/1991	Fiscal Month - January
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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>12/31/2021</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	4.6	3.9	3.4	3.2
2. Ratio of actuarial accrued liability to payroll	6.4	5.5	5.0	4.8
3. Ratio of actives to retirees and beneficiaries	1.6	1.8	2.0	2.1
4. Ratio of market value of assets to benefit payments	23.3	22.3	21.1	19.7
5. Ratio of net cash flow to market value of assets (boy)	2.7%	1.9%	2.2%	1.8%

RATIO OF MARKET VALUE OF ASSETS TO TOTAL PAYROLL

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

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

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

RATIO OF MARKET VALUE OF ASSETS TO BENEFIT PAYMENTS

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

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

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

State Reporting

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

Form 5572		
Line Reference	Description	Result
10	Membership as of December 31, 2021	
11	Indicate number of active members	119
12	Indicate number of inactive members (excluding pending refunds)	39
13	Indicate number of retirees and beneficiaries	75
14	Investment Performance for Calendar Year Ending December 31, 2021¹	
15	Enter actual rate of return - prior 1-year period	14.13%
16	Enter actual rate of return - prior 5-year period	9.96%
17	Enter actual rate of return - prior 10-year period	9.11%
18	Actuarial Assumptions	
19	Actuarial assumed rate of investment return ²	7.00%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any ³	17
22	Is each division within the system closed to new employees? ⁴	No
23	Uniform Assumptions	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$39,038,079
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions ⁵	\$59,336,650
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending December 31, 2022	\$2,615,232

- 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%.