



# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report  
December 31, 2020 - Redford, Chtr Twp of (8209)





Spring, 2021

Redford, Chtr Twp of

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

This report presents the results of the Annual Actuarial Valuation, prepared for Redford, Chtr Twp of (8209) as of December 31, 2020. 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. Redford, Chtr Twp of is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees.

The purposes of this valuation are to:

- Measure funding progress as of December 31, 2020,
- Establish contribution requirements for the fiscal year beginning April 1, 2022,
- 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, 2020. 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, MERS Retirement Board sets certain assumptions for funding and GASB purposes. These assumptions are checked regularly through a comprehensive study, called an Experience Study. Studies were completed in 2018 and 2020, and are the basis of the economic and demographic assumptions and methods currently in place. Updated economic assumptions were adopted by the MERS Retirement Board at the February 28, 2019 board meeting and were effective with the December 31, 2019 annual actuarial valuation. **At the February 27, 2020 board meeting, the MERS Retirement Board adopted demographic assumptions effective with the December 31, 2020 annual actuarial valuation, which will impact contributions beginning in 2022.**

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:

<http://www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2020AnnualActuarialValuation-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, 2020. 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 Redford, Chtr Twp of as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

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.

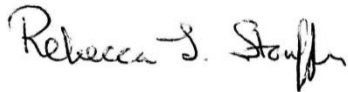
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible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



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 funding 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.

	12/31/2020	12/31/2019
Funded Ratio*	53%	54%

\* 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, 2020 valuation, the MERS Retirement Board has adopted updated demographic assumptions. Changes to these assumptions are effective for contributions beginning in 2022. Effective with the 2019 valuation, the MERS Retirement Board adopted updated economic assumptions. The combined impact of these assumption changes may be phased in. This valuation reflects the second year of phase-in for the economic assumption update and the first year of phase-in for the demographic assumption update. The remaining combined phase-in period is four 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
	12/31/2020	12/31/2020	12/31/2019	12/31/2019	12/31/2020	12/31/2019	12/31/2019	12/31/2019
Valuation Date:	April 1, 2022	April 1, 2022	April 1, 2021	April 1, 2021	April 1, 2022	April 1, 2022	April 1, 2021	April 1, 2021
Fiscal Year Beginning:	2022	2022	2021	2021	2022	2022	2021	2021
<b>Division</b>								
01 - General	51.09%	54.25%	56.76%	59.72%	\$ 8,791	\$ 9,334	\$ 8,686	\$ 9,139
10 - Aptd & Elctd	55.55%	59.52%	56.16%	58.47%	15,744	16,869	14,174	14,756
11 - MAPE	-	-	-	-	116,383	127,546	110,704	118,066
12 - Trustee	35.37%	38.68%	26.56%	28.02%	6,375	6,972	6,859	7,237
13 - Appointed	54.09%	57.92%	58.91%	61.93%	45,955	49,207	39,905	41,954
14 - MAPE EE's after 1/1/2011	-	-	-	-	527	563	622	622
15 - MAPE EE's after 9/14/2011	-	-	-	-	4,416	4,416	6,551	6,578
16 - Court MAPE after 9/7/11	5.46%	5.46%	8.28%	8.22%	937	937	1,973	1,958
17 - MAPE EEs on/aft 8/3/17	3.69%	3.71%	3.88%	3.87%	3,321	3,336	2,884	2,878
<b>Total Municipality -</b>								
<b>Estimated Monthly Contribution</b>					\$ 202,449	\$ 219,180	\$ 192,358	\$ 203,188
<b>Total Municipality -</b>								
<b>Estimated Annual Contribution</b>					\$ 2,429,388	\$ 2,630,160	\$ 2,308,296	\$ 2,438,256

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2020	12/31/2019
<b>Division</b>		
01 - General	0.00%	0.00%
10 - Aptd & Elctd	0.00%	0.00%
11 - MAPE	2.00%	2.00%
12 - Trustee	3.00%	3.00%
13 - Appointed	0.00%	0.00%
14 - MAPE EE's after 1/1/2011	3.00%	3.00%
15 - MAPE EE's after 9/14/2011	3.00%	3.00%
16 - Court MAPE after 9/7/11	2.00%	2.00%
17 - MAPE EEs on/aft 8/3/17	5.00%	5.00%

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.**

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 2022 for the entire employer would be \$319,372, instead of \$219,180.

### **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 **7.35%** 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 Change in 2020**

A 5-year experience study analyzing historical experience from 2013 through 2018 was completed in February 2020. In addition to changes to the economic assumptions which took effect with the fiscal year 2021 contribution rates, the experience study recommended updated demographic assumptions, including adjustments to the following actuarial assumptions: mortality, retirement, disability, and termination rates. Changes to the demographic assumptions resulting from the experience study have been approved by the MERS Retirement Board and are effective beginning with the December 31, 2020 actuarial valuation, first





impacting 2022 contributions. A complete description of the assumptions may be found in the Appendix to the valuation.

## Comments on Asset Smoothing

To avoid dramatic spikes and dips in annual contribution requirements due to short term fluctuations in asset markets, MERS applies a technique called **asset smoothing**. This spreads out each year's investment gains or losses over the prior year and the following four years. 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 2020 was 8.17%, while the actual market rate of return was 12.70%**. 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, 2020, the actuarial value of assets is 97% of market value due to asset smoothing. This means that the 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 exceed the 7.35% 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).

If the December 31, 2020 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 54% (instead of 53%); and
- Your total employer contribution requirement for the fiscal year starting April 1, 2022 would be \$2,556,948 (instead of \$2,630,160).

## 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 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, 2020 valuation, and are for the municipality in total, not by division. These results do not reflect a phase-in of the impact of the new actuarial assumptions.

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.

<b>12/31/2020 Valuation Results</b>	<b>Lower Future Annual Returns</b>	<b>Lower Future Annual Returns</b>	<b>Valuation Assumptions</b>
<b>Investment Return Assumption</b>	<b>5.35%</b>	<b>6.35%</b>	<b>7.35%</b>
Accrued Liability	\$ 69,496,211	\$ 62,558,284	\$ 56,727,834
Valuation Assets <sup>1</sup>	\$ 29,924,187	\$ 29,924,187	\$ 29,924,187
Unfunded Accrued Liability	\$ 39,572,024	\$ 32,634,097	\$ 26,803,647
<b>Funded Ratio</b>	43%	48%	53%
Monthly Normal Cost	\$ 61,618	\$ 47,186	\$ 36,187
Monthly Amortization Payment	\$ 231,422	\$ 206,683	\$ 182,993
<b>Total Employer Contribution<sup>2</sup></b>	\$ 293,040	\$ 253,869	\$ 219,180

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

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

## Projection Scenarios

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

The 7.35% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.35% 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 6.35% and 5.35% 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. The assets 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.

The Funded Percentage graph shows projections of funded status under the 7.35% 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

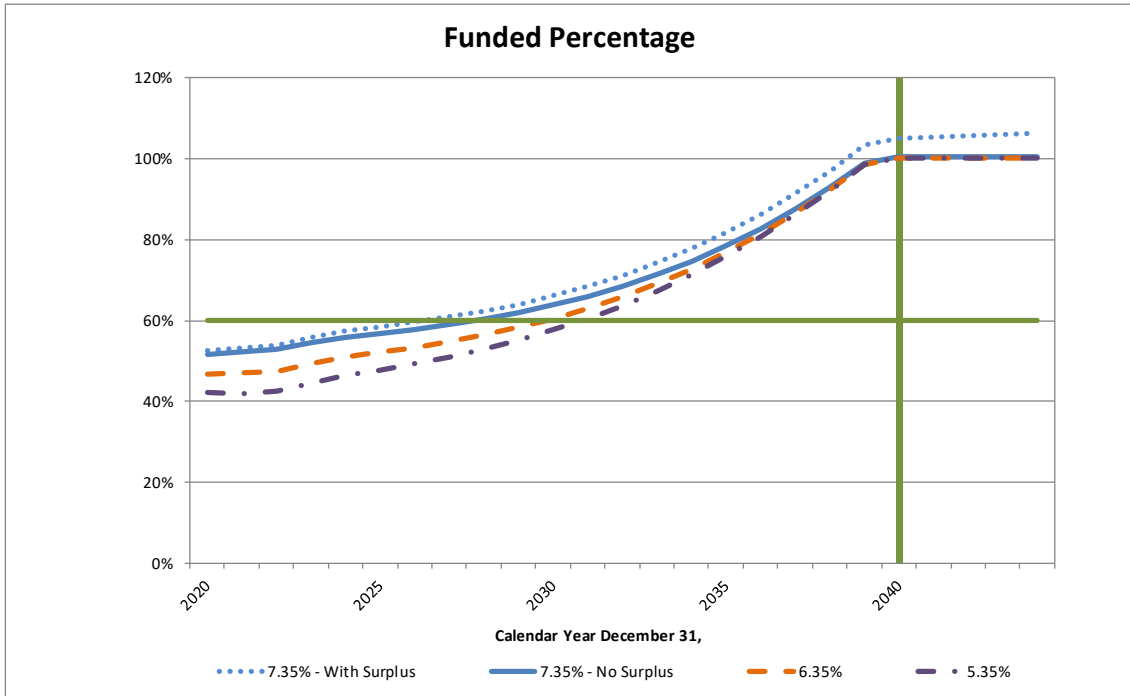


the employer will use them. Once the employer uses these Surplus assets, any future employer contributions are expected to be lower than those shown in the projections.

Valuation Year Ending 12/31	Fiscal Year Beginning 4/1	Actuarial Accrued Liability	Valuation Assets <sup>2</sup>	Funded Percentage	Estimated Annual Employer Contribution
<b>7.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 56,727,834	\$ 29,326,351	52%	\$ 2,630,160
2021	2023	\$ 57,000,000	\$ 29,800,000	52%	\$ 2,680,000
2022	2024	\$ 57,300,000	\$ 30,200,000	53%	\$ 2,760,000
2023	2025	\$ 57,500,000	\$ 31,300,000	54%	\$ 2,780,000
2024	2026	\$ 57,600,000	\$ 32,200,000	56%	\$ 2,820,000
2025	2027	\$ 57,600,000	\$ 32,800,000	57%	\$ 2,900,000
<b>6.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 62,558,284	\$ 29,326,351	47%	\$ 3,046,428
2021	2023	\$ 62,800,000	\$ 29,500,000	47%	\$ 3,120,000
2022	2024	\$ 63,000,000	\$ 29,900,000	48%	\$ 3,210,000
2023	2025	\$ 63,100,000	\$ 31,100,000	49%	\$ 3,250,000
2024	2026	\$ 63,200,000	\$ 32,200,000	51%	\$ 3,300,000
2025	2027	\$ 63,200,000	\$ 32,900,000	52%	\$ 3,390,000
<b>5.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 69,496,211	\$ 29,326,351	42%	\$ 3,516,480
2021	2023	\$ 69,700,000	\$ 29,200,000	42%	\$ 3,610,000
2022	2024	\$ 69,800,000	\$ 29,700,000	43%	\$ 3,720,000
2023	2025	\$ 69,900,000	\$ 31,100,000	44%	\$ 3,770,000
2024	2026	\$ 69,900,000	\$ 32,300,000	46%	\$ 3,850,000
2025	2027	\$ 69,800,000	\$ 33,300,000	48%	\$ 3,950,000

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

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

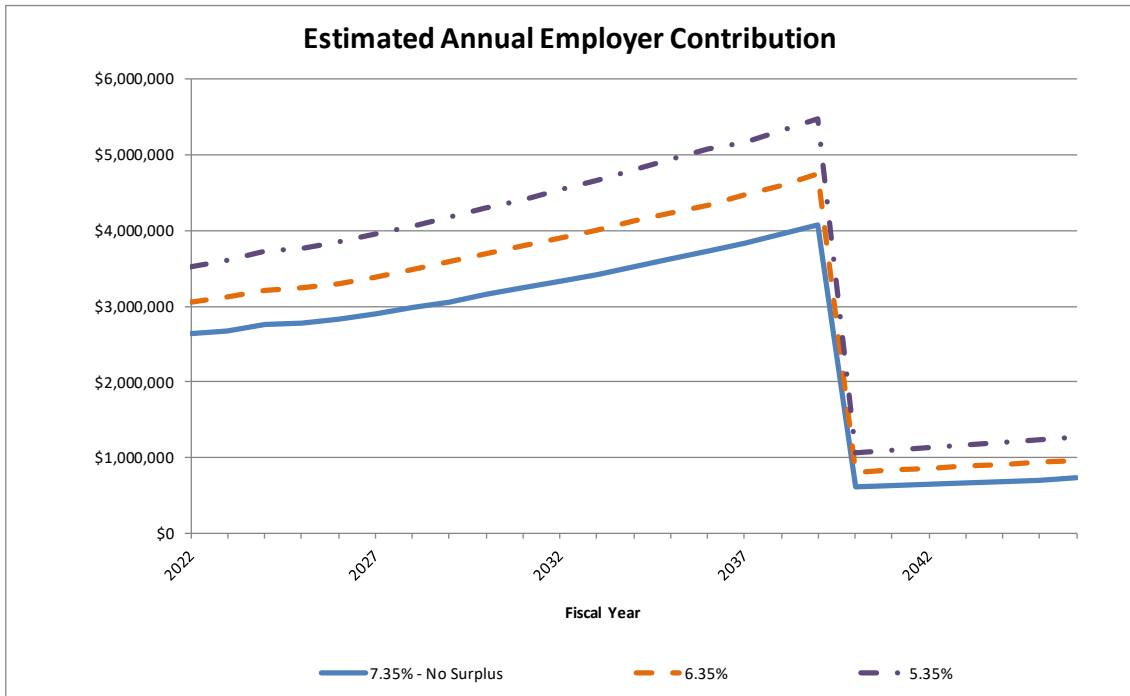


**Notes:**

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 20 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 April 1, 2022

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions <sup>1</sup>			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In <sup>5</sup>	Blended ER Rate With Phase-In <sup>5</sup>	Employee Contribut. Conversion Factor <sup>2</sup>
			Employer Normal Cost <sup>6</sup>	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribut. No Phase-In				
<b>Percentage of Payroll</b>									
01 - General	12.30%	0.00%	12.30%	41.95%	54.25%	51.09%			0.88%
10 - Aptd & Elctd	15.22%	0.00%	15.22%	44.30%	59.52%	55.55%			0.83%
11 - MAPE	13.53%	2.00%	-	-	-	-	57.39%	52.65%	
12 - Trustee	16.12%	3.00%	13.12%	25.56%	38.68%	35.37%			0.75%
13 - Appointed	13.53%	0.00%	13.53%	44.39%	57.92%	54.09%			0.83%
14 - MAPE EE's after 1/1/2011	12.16%	3.00%	-	-	-	-	57.39%	52.65%	
15 - MAPE EE's after 9/14/2011	8.03%	3.00%	-	-	-	-	57.39%	52.65%	
16 - Court MAPE after 9/7/11	7.46%	2.00%	5.46%	0.00%	5.46%	5.46%			0.93%
17 - MAPE EEs on/aft 8/3/17	8.70%	5.00%	3.70%	0.01%	3.71%	3.69%	57.39%	52.65%	0.73%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
01 - General			\$ 2,116	\$ 7,218	\$ 9,334	\$ 8,791			
10 - Aptd & Elctd			4,313	12,556	16,869	15,744			
11 - MAPE			7,224	120,322	127,546	116,383			
12 - Trustee			2,365	4,607	6,972	6,375			
13 - Appointed			11,495	37,712	49,207	45,955			
14 - MAPE EE's after 1/1/2011			394	169	563	527			
15 - MAPE EE's after 9/14/2011			4,014	402	4,416	4,416			
16 - Court MAPE after 9/7/11			937	0	937	937			
17 - MAPE EEs on/aft 8/3/17			3,329	7	3,336	3,321			
<b>Total Municipality</b>			<b>\$ 36,187</b>	<b>\$ 182,993</b>	<b>\$ 219,180</b>	<b>\$ 202,449</b>			
<b>Estimated Annual Contribution<sup>3</sup></b>			<b>\$ 434,244</b>	<b>\$ 2,195,916</b>	<b>\$ 2,630,160</b>	<b>\$ 2,429,388</b>			

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

<sup>2</sup> If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1%, because employee contributions may be refunded at termination of employment, and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.

<sup>3</sup> For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (i.e., closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the Appendix.

- <sup>4</sup> Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions to not add across.
- <sup>5</sup> For linked divisions, the employer will be invoiced the Computed Employer Contribution No Phase-in rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-MERS (6377).
- <sup>6</sup> For divisions with a negative employer normal cost, employee contributions cover the normal cost and a portion of the payment of any unfunded accrued liability.

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

## Table 2: Benefit Provisions

### 01 - General: Open Division

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
	SLIF (120 Days)	SLIF (120 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

### 10 - Aptd & Elctd: Open Division

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

### 11 - MAPE: Closed to new hires, linked to Division 17

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	2.00%	2.00%
	SLIF (120 Days)	SLIF (120 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

**12 - Trustee: Open Division**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	3.00%	3.00%
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

**13 - Appointed: Open Division**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

**14 - MAPE EE's after 1/1/2011: Closed to new hires, linked to Division 17**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	3.00%	3.00%
	SLIF (120 Days)	SLIF (120 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)





**15 - MAPE EE's after 9/14/2011: Closed to new hires, linked to Division 17**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	1.50% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	3.00% SLIF (30 Days)	3.00% SLIF (30 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

**16 - Court MAPE after 9/7/11: Open Division**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	1.50% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	2.00% SLIF (75 Days)	2.00% SLIF (105 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

**17 - MAPE EEs on/aft 8/3/17: Open Division, linked to Division 11, 14, 15**

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	1.50% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/20 25 & Out	55/20 25 & Out
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	5.00% SLIF (30 Days)	5.00% SLIF (30 Days)
<b>Act 88:</b>	Yes (Adopted 11/16/1964)	Yes (Adopted 11/16/1964)

### Table 3: Participant Summary

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
01 - General							
Active Employees	3	\$ 193,182	3	\$ 171,806	38.4	13.4	13.4
Vested Former Employees	3	14,477	3	14,477	44.6	6.0	13.1
Retirees and Beneficiaries	7	146,531	8	158,826	65.9		
Pending Refunds	0		0				
10 - Aptd & Elctd							
Active Employees	5	\$ 318,175	5	\$ 283,340	52.2	16.4	18.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	7	165,100	7	165,100	67.4		
Pending Refunds	0		0				
11 - MAPE							
Active Employees	17	\$ 957,309	19	\$ 1,049,342	53.6	20.3	20.3
Vested Former Employees	13	91,460	15	127,720	50.8	7.7	13.4
Retirees and Beneficiaries	137	2,949,672	136	2,914,435	70.7		
Pending Refunds	14		14				
12 - Trustee							
Active Employees	5	\$ 202,349	7	\$ 289,927	61.4	9.3	9.3
Vested Former Employees	2	64,493	1	26,291	57.7	16.0	16.0
Retirees and Beneficiaries	4	75,298	4	75,298	65.6		
Pending Refunds	4		3				
13 - Appointed							
Active Employees	12	\$ 953,800	10	\$ 760,597	46.2	10.1	10.3
Vested Former Employees	8	100,056	10	112,930	54.6	7.4	13.9
Retirees and Beneficiaries	26	727,350	24	669,153	70.0		
Pending Refunds	2		2				
14 - MAPE EE's after 1/1/2011							
Active Employees	1	\$ 52,403	1	\$ 57,651	47.6	8.4	8.4
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				
15 - MAPE EE's after 9/14/2011							
Active Employees	23	\$ 994,122	28	\$ 1,241,705	44.4	5.9	5.9
Vested Former Employees	1	2,352	1	2,352	41.2	3.6	7.3
Retirees and Beneficiaries	1	6,679	0	0	66.0		
Pending Refunds	9		6				



**Table 3 (continued)**

Division	2020 Valuation		2019 Valuation		2020 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
<b>16 - Court MAPE after 9/7/11</b>							
Active Employees	6	\$ 192,663	8	\$ 267,445	30.0	4.1	4.1
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	4		2				
<b>17 - MAPE EEs on/aft 8/3/17</b>							
Active Employees	19	\$ 654,081	13	\$ 429,229	48.4	1.9	1.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	9		6				
<b>Total Municipality</b>							
<b>Active Employees</b>	<b>91</b>	<b>\$ 4,518,084</b>	<b>94</b>	<b>\$ 4,551,042</b>	<b>47.4</b>	<b>9.2</b>	<b>9.3</b>
<b>Vested Former Employees</b>	<b>27</b>	<b>272,838</b>	<b>30</b>	<b>283,770</b>	<b>51.4</b>	<b>7.9</b>	<b>13.5</b>
<b>Retirees and Beneficiaries</b>	<b>182</b>	<b>4,070,630</b>	<b>179</b>	<b>3,982,812</b>	<b>70.2</b>		
<b>Pending Refunds</b>	<b>42</b>		<b>33</b>				
<b>Total Participants</b>	<b>342</b>		<b>336</b>				

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

<sup>2</sup> Descriptions can be found under Miscellaneous and Technical Assumptions in the Appendix.

## Table 4: Reported Assets (Market Value)

Division	2020 Valuation		2019 Valuation	
	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>
01 - General	\$ 1,364,688	\$ 108	\$ 1,289,224	\$ 108
10 - Aptd & Elctd	1,308,823	7,569	1,150,241	7,562
11 - MAPE	18,983,473	205,558	18,461,125	207,010
12 - Trustee	1,306,412	280,800	1,134,944	271,719
13 - Appointed	5,561,411	38,046	5,084,976	37,732
14 - MAPE EE's after 1/1/2011	62,262	11,476	46,555	9,916
15 - MAPE EE's after 9/14/2011	565,660	191,367	423,427	172,929
16 - Court MAPE after 9/7/11	102,501	23,402	69,464	19,052
17 - MAPE EEs on/aft 8/3/17	75,173	71,338	35,107	40,543
S1 - Surplus Unassociated	614,832	0	544,533	0
<b>Municipality Total<sup>3</sup></b>	<b>\$ 29,945,235</b>	<b>\$ 829,664</b>	<b>\$ 28,239,595</b>	<b>\$ 766,572</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$30,774,899</b>		<b>\$29,006,167</b>	

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

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

<sup>3</sup> Totals may not add due to rounding.

The December 31, 2020 valuation assets (actuarial value of assets) are equal to 0.972357 times the reported market value of assets (compared to 1.013179 as of December 31, 2019). 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 April 1, 2022.

### 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						
2010	\$ 1,206,657		\$ 0	\$ 1,698,568	\$ (2,789,677)	\$ 0	\$ 294,168	\$ 34,512,997
2011	954,304	\$ 0	0	1,477,392	(3,103,951)	0	0	33,840,742
2012	930,764	0	110,532	1,288,982	(3,138,507)	0	1	33,032,514
2013	877,225	0	96,615	1,731,907	(3,362,923)	(937)	0	32,374,401
2014	1,273,166	0	84,764	1,725,870	(3,574,791)	(465)	(1)	31,882,944
2015	1,351,380	200,000	80,906	1,437,026	(3,704,569)	(138)	1	31,247,550
2016	1,609,912	0	77,347	1,428,536	(3,757,876)	0	0	30,605,469
2017	1,699,682	500,000	83,315	1,729,910	(3,855,031)	(18,191)	0	30,745,154
2018	1,895,544	0	97,946	1,073,490	(3,975,221)	(4,140)	41,456	29,874,229
2019	2,114,540	0	98,337	1,320,130	(4,011,335)	(7,462)	0	29,388,439
2020	2,202,935	121	99,603	2,207,563	(3,974,038)	(436)	0	29,924,187

**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.

Additional employer contributions, if any, are shown separately starting in 2011. Prior to 2011, additional contributions are combined with the required employer contributions.

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, 2020**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - General	\$ 738,718	\$ 99,255	\$ 1,573,859	\$ 0	\$ 2,411,832	\$ 1,327,069	55.0%	\$ 1,084,763
10 - Aptd & Elctd	1,331,922	0	1,819,798	0	3,151,720	1,280,003	40.6%	1,871,717
11 - MAPE	5,736,790	658,730	30,317,407	6,963	36,719,890	18,658,589	50.8%	18,061,301
12 - Trustee	726,865	670,992	825,834	9,681	2,233,372	1,543,337	69.1%	690,035
13 - Appointed	2,778,458	786,092	7,508,408	4,744	11,077,702	5,444,671	49.1%	5,633,031
14 - MAPE EE's after 1/1/2011	97,392	0	0	0	97,392	71,699	73.6%	25,693
15 - MAPE EE's after 9/14/2011	674,598	6,728	70,690	34,365	786,381	736,100	93.6%	50,281
16 - Court MAPE after 9/7/11	99,332	0	0	6,804	106,136	122,423	115.3%	(16,287)
17 - MAPE EEs on/aft 8/3/17	136,848	0	0	6,561	143,409	142,460	99.3%	949
S1 - Surplus Unassociated	0	0	0	0	0	597,836		(597,836)
<b>Total</b>	<b>\$ 12,320,923</b>	<b>\$ 2,221,797</b>	<b>\$ 42,115,996</b>	<b>\$ 69,118</b>	<b>\$ 56,727,834</b>	<b>\$ 29,924,187</b>	<b>52.8%</b>	<b>\$ 26,803,647</b>

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

**Table 6 (continued)**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
Linked Divisions 17, 11, 14, 15	\$ 6,645,628	\$ 665,458	\$ 30,388,097	\$ 47,889	\$ 37,747,072	\$ 19,608,848	51.9%	\$ 18,138,224

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

The December 31, 2020 valuation assets (actuarial value of assets) are equal to 0.972357 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
2006	\$ 39,101,484	\$ 31,958,330	82%	\$ 7,143,154
2007	40,572,189	33,543,730	83%	7,028,459
2008	42,634,099	33,994,185	80%	8,639,914
2009	42,768,340	34,103,281	80%	8,665,059
2010	44,941,630	34,512,997	77%	10,428,633
2011	46,269,138	33,840,742	73%	12,428,396
2012	46,439,237	33,032,514	71%	13,406,723
2013	47,468,148	32,374,401	68%	15,093,747
2014	49,011,356	31,882,944	65%	17,128,412
2015	52,073,750	31,247,550	60%	20,826,200
2016	52,069,039	30,605,469	59%	21,463,570
2017	52,650,032	30,745,154	58%	21,904,878
2018	52,724,578	29,874,229	57%	22,850,349
2019	54,327,984	29,388,439	54%	24,939,545
2020	56,727,834	29,924,187	53%	26,803,647

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012, 2015, 2019 and 2020 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 - General

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 33,820,826	\$ 26,121,843	77%	\$ 7,698,983
2011	34,686,362	25,535,703	74%	9,150,659
2012	24,967,794	18,661,973	75%	6,305,821
2013	24,158,984	17,325,869	72%	6,833,115
2014	1,759,190	1,054,802	60%	704,388
2015	1,888,104	1,104,242	59%	783,862
2016	1,939,260	1,194,573	62%	744,687
2017	2,118,181	1,314,617	62%	803,564
2018	2,170,374	1,320,677	61%	849,697
2019	2,352,984	1,306,324	56%	1,046,660
2020	2,411,832	1,327,069	55%	1,084,763

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	71	\$ 3,150,951	27.23%	0.00%
2011	72	3,194,151	30.00%	0.00%
2012	6	271,194	159.98%	0.00%
2013	8	328,869	138.22%	0.00%
2014	8	357,113	17.57%	0.00%
2015	8	343,065	28.16%	0.00%
2016	7	324,748	29.70%	0.00%
2017	5	273,513	34.32%	0.00%
2018	4	211,641	42.17%	0.00%
2019	3	171,806	59.72%	0.00%
2020	3	193,182	54.25%	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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

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

## Division 10 - Aptd & Elctd

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 11,120,804	\$ 8,391,154	75%	\$ 2,729,650
2011	11,582,776	8,305,039	72%	3,277,737
2012	9,376,172	6,708,072	72%	2,668,100
2013	9,541,506	6,495,437	68%	3,046,069
2014	2,357,962	1,044,057	44%	1,313,905
2015	2,525,122	1,032,713	41%	1,492,409
2016	2,204,721	1,035,583	47%	1,169,138
2017	2,212,477	1,023,202	46%	1,189,275
2018	2,252,463	944,946	42%	1,307,517
2019	2,823,645	1,173,061	42%	1,650,584
2020	3,151,720	1,280,003	41%	1,871,717

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

**Table 9-10: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	22	\$ 1,118,005	26.20%	0.00%
2011	22	1,121,410	29.65%	0.00%
2012	5	260,986	76.71%	0.00%
2013	5	228,091	95.99%	0.00%
2014	5	244,192	43.10%	0.00%
2015	5	260,680	50.26%	0.00%
2016	4	199,083	52.72%	0.00%
2017	4	203,363	54.06%	0.00%
2018	4	211,905	57.82%	0.00%
2019	5	283,340	58.47%	0.00%
2020	5	318,175	59.52%	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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

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

## Division 11 - MAPE

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	9,706,547	6,057,861	62%	3,648,686
2013	10,997,416	6,837,386	62%	4,160,030
2014	35,960,651	23,595,035	66%	12,365,616
2015	37,812,215	22,816,552	60%	14,995,663
2016	37,335,004	21,990,871	59%	15,344,133
2017	37,291,346	21,392,222	57%	15,899,124
2018	35,756,932	19,772,632	55%	15,984,300
2019	35,861,991	18,914,163	53%	16,947,828
2020	36,719,890	18,658,589	51%	18,061,301

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

**Table 9-11: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	60	2,664,360	20.73%	2.00%
2013	62	2,579,188	22.34%	2.00%
2014	40	1,945,206	\$ 86,542	2.00%
2015	35	1,790,285	\$ 103,608	2.00%
2016	31	1,617,247	\$ 103,866	2.00%
2017	27	1,432,790	\$ 107,390	2.00%
2018	21	1,148,681	\$ 107,747	2.00%
2019	19	1,049,342	\$ 118,066	2.00%
2020	17	957,309	\$ 127,546	2.00%

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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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

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

## Division 12 - Trustee

**Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	549,667	404,639	74%	145,028
2013	633,871	478,566	76%	155,305
2014	1,447,301	1,103,244	76%	344,057
2015	1,642,310	1,169,659	71%	472,651
2016	1,720,789	1,238,168	72%	482,621
2017	1,811,526	1,319,765	73%	491,761
2018	1,957,868	1,416,820	72%	541,048
2019	2,063,399	1,425,201	69%	638,198
2020	2,233,372	1,543,337	69%	690,035

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

**Table 9-12: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	7	263,049	8.82%	10.00%
2013	7	264,807	9.15%	10.00%
2014	7	264,903	13.68%	10.00%
2015	7	267,338	23.67%	3.00%
2016	7	230,724	25.23%	3.00%
2017	7	274,878	23.55%	3.00%
2018	7	284,221	24.67%	3.00%
2019	7	289,927	28.02%	3.00%
2020	5	202,349	38.68%	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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 13 - Appointed

**Table 8-13: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	1,839,057	1,199,969	65%	639,088
2013	2,136,371	1,237,143	58%	899,228
2014	7,415,538	5,009,140	68%	2,406,398
2015	8,033,111	4,945,144	62%	3,087,967
2016	8,564,592	4,848,613	57%	3,715,979
2017	8,727,784	4,753,239	55%	3,974,545
2018	9,834,029	5,276,693	54%	4,557,336
2019	10,199,622	5,190,220	51%	5,009,402
2020	11,077,702	5,444,671	49%	5,633,031

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	7	388,423	18.69%	6.00%
2013	8	464,481	26.92%	0.00%
2014	8	460,795	46.48%	0.00%
2015	10	604,267	46.11%	0.00%
2016	10	656,558	51.32%	0.00%
2017	10	621,532	57.12%	0.00%
2018	14	928,447	48.05%	0.00%
2019	10	760,597	61.93%	0.00%
2020	12	953,800	57.92%	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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 - MAPE EE's after 1/1/2011

**Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	20,319	17,794	88%	2,525
2015	29,731	23,217	78%	6,514
2016	36,451	30,218	83%	6,233
2017	56,361	38,741	69%	17,620
2018	73,150	46,799	64%	26,351
2019	85,331	57,216	67%	28,115
2020	97,392	71,699	74%	25,693

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

**Table 9-14: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	1	47,601	\$ 351	3.00%
2015	1	47,132	\$ 393	3.00%
2016	1	44,035	\$ 372	3.00%
2017	1	54,873	\$ 534	3.00%
2018	1	59,072	\$ 623	3.00%
2019	1	57,651	\$ 622	3.00%
2020	1	52,403	\$ 563	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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 - MAPE EE's after 9/14/2011

**Table 8-15: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	50,395	58,872	117%	(8,477)
2015	131,424	149,797	114%	(18,373)
2016	235,484	247,814	105%	(12,330)
2017	371,447	352,164	95%	19,283
2018	557,483	473,995	85%	83,488
2019	732,168	604,215	83%	127,953
2020	786,381	736,100	94%	50,281

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

**Table 9-15: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	21	598,151	5.09%	3.00%
2015	28	845,440	5.18%	3.00%
2016	30	970,582	5.29%	3.00%
2017	29	1,067,943	\$ 4,901	3.00%
2018	29	1,216,368	\$ 6,136	3.00%
2019	28	1,241,705	\$ 6,578	3.00%
2020	23	994,122	\$ 4,416	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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

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

## Division 16 - Court MAPE after 9/7/11

**Table 8-16: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	11,733	6,226	53%	5,507
2016	32,738	19,629	60%	13,109
2017	57,020	38,328	67%	18,692
2018	88,674	60,784	69%	27,890
2019	128,990	89,683	70%	39,307
2020	106,136	122,423	115%	(16,287)

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

**Table 9-16: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
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	112,340	6.41%	2.00%
2016	6	161,195	7.36%	2.00%
2017	7	196,615	7.54%	2.00%
2018	6	217,526	7.92%	2.00%
2019	8	267,445	8.22%	2.00%
2020	6	192,663	5.46%	2.00%

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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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 17 - MAPE EEs on/aft 8/3/17

**Table 8-17: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 0	\$ 0	0%	\$ 0
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	3,890	6,388	164%	(2,498)
2018	33,605	35,301	105%	(1,696)
2019	79,854	76,647	96%	3,207
2020	143,409	142,460	99%	949

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

**Table 9-17: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	0	\$ 0	\$ 0	0.00%
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	8	196,386	3.66%	5.00%
2018	10	342,300	3.86%	5.00%
2019	13	429,229	3.87%	5.00%
2020	19	654,081	3.71%	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 for the 12/31/2015 through 12/31/2020 valuations do not reflect the phase-in of the change in contribution requirements associated with the new actuarial assumptions. The full contribution without phase-in is shown in Table 9 above.

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
2010	\$ 0	\$ 0		\$ 0
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	506,488		(506,488)
2018	0	525,582		(525,582)
2019	0	551,709		(551,709)
2020	0	597,836		(597,836)

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

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

## Table 10: Division-Based Layered Amortization Schedule

### Division 01 - General

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 783,862	23	\$ 744,176	18	\$ 59,496
(Gain)/Loss	12/31/2016	23,676	22	26,172	18	2,088
(Gain)/Loss	12/31/2017	41,038	21	45,060	18	3,600
(Gain)/Loss	12/31/2018	36,627	20	40,039	18	3,204
(Gain)/Loss	12/31/2019	116,470	19	126,449	18	10,104
Assumption	12/31/2019	73,307	19	74,849	18	5,988
Experience	12/31/2020	24,459	18	26,726	18	2,136
<b>Total</b>				<b>\$ 1,083,471</b>		<b>\$ 86,616</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 10 - Aptd & Elctd

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,492,409	23	\$ 1,523,926	18	\$ 121,824
(Gain)/Loss	12/31/2016	(316,899)	22	(350,294)	18	(28,008)
(Gain)/Loss	12/31/2017	21,221	21	23,298	18	1,860
(Gain)/Loss	12/31/2018	113,283	20	123,830	18	9,900
(Gain)/Loss	12/31/2019	243,447	19	264,302	18	21,132
Assumption	12/31/2019	85,512	19	85,201	18	6,816
Experience	12/31/2020	196,366	18	214,570	18	17,148
<b>Total</b>				<b>\$ 1,884,833</b>		<b>\$ 150,672</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 11 - MAPE

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 14,995,663	23	\$ 15,776,209	18	\$ 1,261,212
(Gain)/Loss	12/31/2016	(101,115)	22	(111,759)	18	(8,940)
(Gain)/Loss	12/31/2017	383,006	21	420,545	18	33,624
(Gain)/Loss	12/31/2018	(62,513)	20	(68,333)	18	(5,460)
(Gain)/Loss	12/31/2019	(236,120)	19	(256,354)	18	(20,496)
Assumption	12/31/2019	1,114,759	19	1,133,691	18	90,636
Experience	12/31/2020	1,067,934	18	1,166,936	18	93,288
<b>Total</b>				<b>\$ 18,060,935</b>		<b>\$ 1,443,864</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 12 - Trustee

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 472,651	23	\$ 524,066	18	\$ 41,892
(Gain)/Loss	12/31/2016	(24,719)	22	(27,323)	18	(2,184)
(Gain)/Loss	12/31/2017	(680)	21	(743)	18	(60)
(Gain)/Loss	12/31/2018	45,991	20	50,280	18	4,020
(Gain)/Loss	12/31/2019	28,320	19	30,745	18	2,460
Assumption	12/31/2019	62,902	19	65,492	18	5,232
Experience	12/31/2020	44,874	18	49,034	18	3,924
<b>Total</b>				<b>\$ 691,551</b>		<b>\$ 55,284</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 13 - Appointed

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 3,087,967	23	\$ 3,207,413	18	\$ 256,416
(Gain)/Loss	12/31/2016	564,968	22	624,498	18	49,920
(Gain)/Loss	12/31/2017	189,502	21	208,083	18	16,632
(Gain)/Loss	12/31/2018	528,657	20	577,853	18	46,200
(Gain)/Loss	12/31/2019	68,583	19	74,455	18	5,952
Assumption	12/31/2019	318,855	19	323,411	18	25,860
Experience	12/31/2020	590,288	18	645,010	18	51,564
<b>Total</b>				<b>\$ 5,660,723</b>		<b>\$ 452,544</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 - MAPE EE's after 1/1/2011

**Table 10-14: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 6,514	23	\$ 7,447	18	\$ 600
(Gain)/Loss	12/31/2016	(980)	22	(1,085)	18	(84)
(Gain)/Loss	12/31/2017	11,308	21	12,423	18	996
(Gain)/Loss	12/31/2018	7,817	20	8,546	18	684
(Gain)/Loss	12/31/2019	7	19	9	18	0
Assumption	12/31/2019	857	19	800	18	60
Experience	12/31/2020	(2,610)	18	(2,852)	18	(228)
<b>Total</b>				<b>\$ 25,288</b>		<b>\$ 2,028</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 - MAPE EE's after 9/14/2011

**Table 10-15: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ 21,190	15	\$ 21,754	12	\$ 2,340
(Gain)/Loss	12/31/2018	61,020	15	64,307	13	6,492
(Gain)/Loss	12/31/2019	30,575	15	32,718	14	3,120
Assumption	12/31/2019	8,774	15	8,813	14	840
Experience	12/31/2020	(80,273)	15	(87,715)	15	(7,968)
<b>Total</b>				<b>\$ 39,877</b>		<b>\$ 4,824</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 16 - Court MAPE after 9/7/11

**Table 10-16: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Experience	12/31/2020	(19,766)	15	(21,598)	15	(1,956)
<b>Total</b>				<b>\$ (21,598)</b>		<b>\$ (1,956)</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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 17 - MAPE EEs on/aft 8/3/17

**Table 10-17: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 4/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ 3,414	15	\$ 3,657	14	\$ 348
Experience	12/31/2020	(2,678)	15	(2,926)	15	(264)
<b>Total</b>				<b>\$ 731</b>		<b>\$ 84</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2020 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2020 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:	12/31/2020
Measurement Date of the Total Pension Liability (TPL):	12/31/2020
At 12/31/2020, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	182
Inactive employees entitled to but not yet receiving benefits (including refunds):	69
Active employees:	<u>91</u>
	342
Total Pension Liability as of 12/31/2019 measurement date:	\$ 53,118,553
Total Pension Liability as of 12/31/2020 measurement date:	\$ 55,416,178
Service Cost for the year ending on the 12/31/2020 measurement date:	\$ 525,136
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ 54,761
- Changes in assumptions <sup>2</sup> :	\$ 1,786,269
Average expected remaining service lives of all employees (active and inactive):	2

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

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

Covered employee payroll (Needed for Required Supplementary Information):	\$ 4,518,084
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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>(6.60%)</u>	Current Discount Rate <u>(7.60%)</u>	1% Increase <u>(8.60%)</u>
Change in Net Pension Liability as of 12/31/2020:	\$ 5,590,302	\$ 0	\$ (4,749,833)

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



## GASB Statement No. 68 Information

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

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

Actuarial Valuation Date:		12/31/2020
Measurement Date of the Total Pension Liability (TPL):		12/31/2021
At 12/31/2020, the following employees were covered by the benefit terms:		
Inactive employees or beneficiaries currently receiving benefits:		182
Inactive employees entitled to but not yet receiving benefits (including refunds):		69
Active employees:		<u>91</u>
		342
Total Pension Liability as of 12/31/2020 measurement date:	\$	53,429,410
Total Pension Liability as of 12/31/2021 measurement date:	\$	55,706,434
Service Cost for the year ending on the 12/31/2021 measurement date:	\$	538,029
Change in the Total Pension Liability due to:		
- Benefit changes <sup>1</sup> :	\$	0
- Differences between expected and actual experience <sup>2</sup> :	\$	215,738
- Changes in assumptions <sup>2</sup> :	\$	1,888,112
Average expected remaining service lives of all employees (active and inactive):		2

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

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

Covered employee payroll (Needed for Required Supplementary Information):	\$	4,518,084
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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>(6.60%)</u>	Current Discount Rate <u>(7.60%)</u>	1% Increase <u>(8.60%)</u>
Change in Net Pension Liability as of 12/31/2021:	\$ 5,550,635	\$ 0	\$ (4,721,283)

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

# Benefit Provision History

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

## 01 - General

12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2009	Exclude Temporary Employees requiring less than 12 months
12/17/2001	Blanket Resolution (All Service)
4/1/1995	Benefit B-4 (80% max)
4/1/1995	25 Years & Out
4/1/1995	Sick Eligibility - 960 Hours
4/1/1995	8 Year Vesting
4/1/1990	Benefit B-3 (80% max)
4/1/1990	Benefit F55 (With 20 Years of Service)
4/1/1989	Benefit FAC-3 (3 Year Final Average Compensation)
4/1/1988	Member Contribution Rate 0.00%
1/1/1988	Flexible E 2% COLA Adopted (01/01/1988)
5/18/1987	Exclude Temporary Employees
1/1/1987	Flexible E 2% COLA Adopted (01/01/1987)
6/1/1986	Benefit F50 (With 25 Years of Service)
4/1/1982	Benefit C-2/Base C-1 (Old)
6/1/1970	Benefit C-1 (Old)
11/16/1964	Covered by Act 88
7/1/1962	Benefit C (Old)
7/1/1962	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
7/1/1962	Fiscal Month - April
7/1/1962	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1962	10 Year Vesting
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
	Defined Benefit Normal Retirement Age - 60

## 10 - Aptd & Elctd

12/1/2016	Service Credit Purchase Estimates - Yes
5/1/2010	25 Years & Out
2/1/2009	Exclude Temporary Employees requiring less than 12 months
6/11/2002	Blanket Resolution (All Service)
2/1/1999	Benefit B-4 (80% max)
4/1/1994	8 Year Vesting
4/1/1990	10 Year Vesting
4/1/1990	Benefit B-3 (80% max)
4/1/1990	Benefit F55 (With 20 Years of Service)
7/1/1989	Member Contribution Rate 0.00%
4/1/1989	Benefit FAC-3 (3 Year Final Average Compensation)
5/18/1987	Exclude Temporary Employees
6/1/1986	Benefit F50 (With 25 Years of Service)
11/16/1964	Covered by Act 88
7/1/1962	Fiscal Month - April



## 10 - Aptd & Elctd

Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 11 - MAPE

12/1/2016 Service Credit Purchase Estimates - Yes  
1/1/2012 Day of work defined as 8 Hours a Day for All employees.  
1/1/2012 25 Years & Out  
1/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)  
1/1/2012 Non Standard Compensation Definition  
1/1/2012 Exclude Temporary Employees requiring less than 12 months  
1/1/2012 Sick Eligibility - 960 Hours  
1/1/2012 8 Year Vesting  
1/1/2012 Benefit B-4 (80% max)  
1/1/2012 Benefit F55 (With 20 Years of Service)  
1/1/2012 Member Contribution Rate 2.00%  
11/16/1964 Covered by Act 88  
7/1/1962 Fiscal Month - April  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 12 - Trustee

12/1/2016 Service Credit Purchase Estimates - Yes  
5/1/2015 Participant Contribution Rate 3%  
1/1/2012 Day of work defined as 8 Hours a Day for All employees.  
1/1/2012 25 Years & Out  
1/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)  
1/1/2012 Non Standard Compensation Definition  
1/1/2012 Exclude Temporary Employees requiring less than 12 months  
1/1/2012 8 Year Vesting  
1/1/2012 Benefit B-4 (80% max)  
1/1/2012 Benefit F55 (With 20 Years of Service)  
1/1/2012 Member Contribution Rate 10.00%  
11/16/1964 Covered by Act 88  
7/1/1962 Fiscal Month - April  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 13 - Appointed

12/1/2016 Service Credit Purchase Estimates - Yes  
4/1/2013 Member Contribution Rate 0.00%  
1/1/2012 Day of work defined as 8 Hours a Day for All employees.  
1/1/2012 25 Years & Out  
1/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)  
1/1/2012 Non Standard Compensation Definition  
1/1/2012 Exclude Temporary Employees requiring less than 12 months  
1/1/2012 8 Year Vesting  
1/1/2012 Benefit B-4 (80% max)  
1/1/2012 Benefit F55 (With 20 Years of Service)  
1/1/2012 Member Contribution Rate 6.00%



### 13 - Appointed

11/16/1964 Covered by Act 88  
7/1/1962 Fiscal Month - April  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

### 14 - MAPE EE's after 1/1/2011

12/1/2016 Service Credit Purchase Estimates - Yes  
3/1/2014 Day of work defined as 8 Hours a Day for All employees.  
3/1/2014 25 Years & Out  
3/1/2014 Benefit FAC-3 (3 Year Final Average Compensation)  
3/1/2014 Non Standard Compensation Definition  
3/1/2014 Exclude Temporary Employees requiring less than 12 months  
3/1/2014 Sick Eligibility - 960 Hours  
3/1/2014 10 Year Vesting  
3/1/2014 Benefit B-3 (80% max)  
3/1/2014 Benefit F55 (With 20 Years of Service)  
3/1/2014 Member Contribution Rate 3.00%  
11/16/1964 Covered by Act 88  
7/1/1962 Fiscal Month - April  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

### 15 - MAPE EE's after 9/14/2011

12/1/2016 Service Credit Purchase Estimates - Yes  
3/1/2014 Day of work defined as 8 Hours a Day for All employees.  
3/1/2014 25 Years & Out  
3/1/2014 Benefit FAC-3 (3 Year Final Average Compensation)  
3/1/2014 Non Standard Compensation Definition  
3/1/2014 Exclude Temporary Employees requiring less than 12 months  
3/1/2014 Sick Eligibility - 240 Hours  
3/1/2014 10 Year Vesting  
3/1/2014 Benefit C-1 (New)  
3/1/2014 Benefit F55 (With 20 Years of Service)  
3/1/2014 Member Contribution Rate 3.00%  
11/16/1964 Covered by Act 88  
7/1/1962 Fiscal Month - April  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

### 16 - Court MAPE after 9/7/11

12/1/2016 Service Credit Purchase Estimates - Yes  
8/1/2015 Day of work defined as 80 Hours a Month for All employees.  
8/1/2015 25 Years & Out  
8/1/2015 Benefit FAC-3 (3 Year Final Average Compensation)  
8/1/2015 Non Standard Compensation Definition  
8/1/2015 Exclude Temporary Employees requiring less than 12 months  
8/1/2015 Sick Eligibility - 600 hours  
8/1/2015 8 Year Vesting  
8/1/2015 Benefit C-1 (New)





## 16 - Court MAPE after 9/7/11

8/1/2015	Benefit F55 (With 20 Years of Service)
8/1/2015	Participant Contribution Rate 2%
11/16/1964	Covered by Act 88
7/1/1962	Fiscal Month - April
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 17 - MAPE EEs on/aft 8/3/17

8/1/2017	Day of work defined as 80 Hours a Month for All employees.
8/1/2017	25 Years & Out
8/1/2017	Benefit FAC-3 (3 Year Final Average Compensation)
8/1/2017	Non Standard Compensation Definition
8/1/2017	Exclude Temporary Employees requiring less than 12 months
8/1/2017	Sick Eligibility - 240 Hours
8/1/2017	10 Year Vesting
8/1/2017	Defined Benefit Normal Retirement Age - 60
8/1/2017	Service Credit Purchase Estimates - No
8/1/2017	Benefit C-1 (New)
8/1/2017	Benefit F55 (With 20 Years of Service)
8/1/2017	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
8/1/2017	Participant Contribution Rate 5%
11/16/1964	Covered by Act 88
7/1/1962	Fiscal Month - April

## S1 - Surplus Unassociated

7/1/1962	Fiscal Month - April
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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	SLIF Increase Assumption
01 - General	0.00%	15.38%
10 - Aptd & Elctd	10.00%	0.00%
11 - MAPE	0.00%	15.38%
12 - Trustee	10.00%	0.00%
13 - Appointed	10.00%	0.00%
14 - MAPE EE's after 1/1/2011	0.00%	15.38%
15 - MAPE EE's after 9/14/2011	0.00%	3.85%
16 - Court MAPE after 9/7/11	0.00%	9.62%
17 - MAPE EEs on/aft 8/3/17	0.00%	3.85%

## 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>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
1. Ratio of the market value of assets to total payroll	6.8	6.4	5.9
2. Ratio of actuarial accrued liability to payroll	12.6	11.9	11.4
3. Ratio of actives to retirees and beneficiaries	0.5	0.5	0.5
4. Ratio of market value of assets to benefit payments	7.7	7.2	6.9
5. Ratio of net cash flow to market value of assets (boy)	-5.8%	-6.6%	-6.4%

### **RATIO OF MARKET VALUE OF ASSETS TO TOTAL PAYROLL**

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

### **RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL**

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

### **RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES**

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

### **RATIO OF MARKET VALUE OF ASSETS TO BENEFIT PAYMENTS**

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

### **RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS**

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

## State Reporting

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

Form 5572		
Line Reference	Description	Result
<b>10</b>	<b>Membership as of December 31, 2020</b>	
11	Indicate number of active members	91
12	Indicate number of inactive members (excluding pending refunds)	27
13	Indicate number of retirees and beneficiaries	182
<b>14</b>	<b>Investment Performance for Calendar Year Ending December 31, 2020<sup>1</sup></b>	
15	Enter actual rate of return - prior 1-year period	13.59%
16	Enter actual rate of return - prior 5-year period	9.35%
17	Enter actual rate of return - prior 10-year period	7.91%
<b>18</b>	<b>Actuarial Assumptions</b>	
19	Actuarial assumed rate of investment return <sup>2</sup>	7.35%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any <sup>3</sup>	18
22	Is each division within the system closed to new employees? <sup>4</sup>	No
<b>23</b>	<b>Uniform Assumptions</b>	
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$29,714,948
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions <sup>5</sup>	\$58,657,532
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending March 31, 2021	\$2,639,688

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) indicate “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 7.00%.