



# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report  
December 31, 2020 - Lapeer Co (4403)





Spring, 2021

Lapeer Co

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 Lapeer Co (4403) 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. Lapeer Co 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 January 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 Lapeer Co 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.

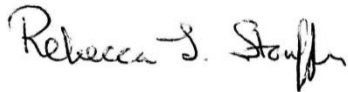
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible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

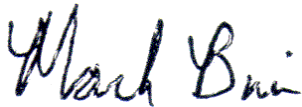
Sincerely,



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*	80%	83%

\* 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	12/31/2020	12/31/2019	12/31/2019
Valuation Date:	January 1, 2022	January 1, 2022	January 1, 2021	January 1, 2021	January 1, 2022	January 1, 2022	January 1, 2021	January 1, 2021
Fiscal Year Beginning:	2022	2022	2021	2021	2022	2022	2021	2021
<b>Division</b>								
02 - Sheriff Union	18.41%	22.69%	17.58%	18.86%	\$ 70,602	\$ 87,006	\$ 67,409	\$ 72,332
04 - S.T.A.R.S.	8.79%	10.02%	8.49%	8.73%	65,669	74,882	66,143	68,051
06 - CMH Union	8.54%	9.97%	8.05%	7.93%	25,806	30,129	22,002	21,681
10 - Health Union	11.28%	14.57%	11.47%	12.57%	16,164	20,880	14,489	15,875
11 - Gnrl Non Union	13.99%	17.12%	13.26%	14.23%	27,549	33,711	28,972	31,099
12 - General Union	12.63%	16.08%	12.37%	13.26%	28,375	36,115	27,400	29,380
13 - Elected & Appt. Dept Heads	9.07%	11.74%	10.29%	11.72%	10,581	13,692	12,135	13,818
20 - Dispatch Union	11.38%	16.06%	9.81%	10.64%	8,403	11,862	7,047	7,641
40 - MCF Non Union	22.45%	25.36%	20.35%	21.27%	120,800	136,457	106,712	111,533
60 - CMH Non Union	8.76%	11.06%	7.84%	7.76%	6,782	8,558	6,457	6,388
<b>Total Municipality - Estimated Monthly Contribution</b>					\$ 380,731	\$ 453,292	\$ 358,766	\$ 377,798
<b>Total Municipality - Estimated Annual Contribution</b>					\$ 4,568,772	\$ 5,439,504	\$ 4,305,192	\$ 4,533,576

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2020	12/31/2019
<b>Division</b>		
02 - Sheriff Union	2.49%	2.49%
04 - S.T.A.R.S.	1.27%	1.27%
06 - CMH Union	0.00%	0.00%
10 - Health Union	0.00%	0.00%
11 - Gnrl Non Union	0.00%	0.00%
12 - General Union	0.00%	0.00%
13 - Elected & Appt. Dept Heads	2.53%	2.53%
20 - Dispatch Union	0.00%	0.00%
40 - MCF Non Union	0.00%	0.00%
60 - CMH Non Union	0.00%	0.00%

The employer may contribute more than the minimum required contributions, as these additional contributions will earn investment income and may result in lower future contribution requirements. Employers making contributions in excess of the minimum requirements may elect to apply the excess contribution immediately to a particular division, or segregate the excess into one or more of what MERS calls “Surplus” divisions. An election in the first case would immediately reduce any unfunded accrued liability and



lower the amortization payments throughout the remaining amortization period. An election to set up Surplus divisions would not immediately lower future contributions, however the assets from the Surplus division could be transferred to an unfunded division in the future to reduce the unfunded liability in future years, or to be used to pay all or a portion of the minimum required contribution in a future year. For purposes of this report, the assets in any Surplus division have been included in the municipality's total assets, unfunded accrued liability and funded status, however, these assets are not used in calculating the minimum required contribution.

### **MERS strongly encourages employers to contribute more than the minimum contribution shown above.**

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 \$560,519, instead of \$453,292.

### **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 83% (instead of 80%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2022 would be \$5,140,464 (instead of \$5,439,504).

## 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	\$ 191,202,780	\$ 168,455,326	\$ 149,653,324
Valuation Assets <sup>1</sup>	\$ 120,469,628	\$ 120,469,628	\$ 120,469,628
Unfunded Accrued Liability	\$ 70,733,152	\$ 47,985,698	\$ 29,183,696
<b>Funded Ratio</b>	63%	72%	80%
Monthly Normal Cost	\$ 439,089	\$ 334,970	\$ 256,782
Monthly Amortization Payment	\$ 420,137	\$ 306,198	\$ 196,510
<b>Total Employer Contribution<sup>2</sup></b>	<b>\$ 859,226</b>	<b>\$ 641,168</b>	<b>\$ 453,292</b>

<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.

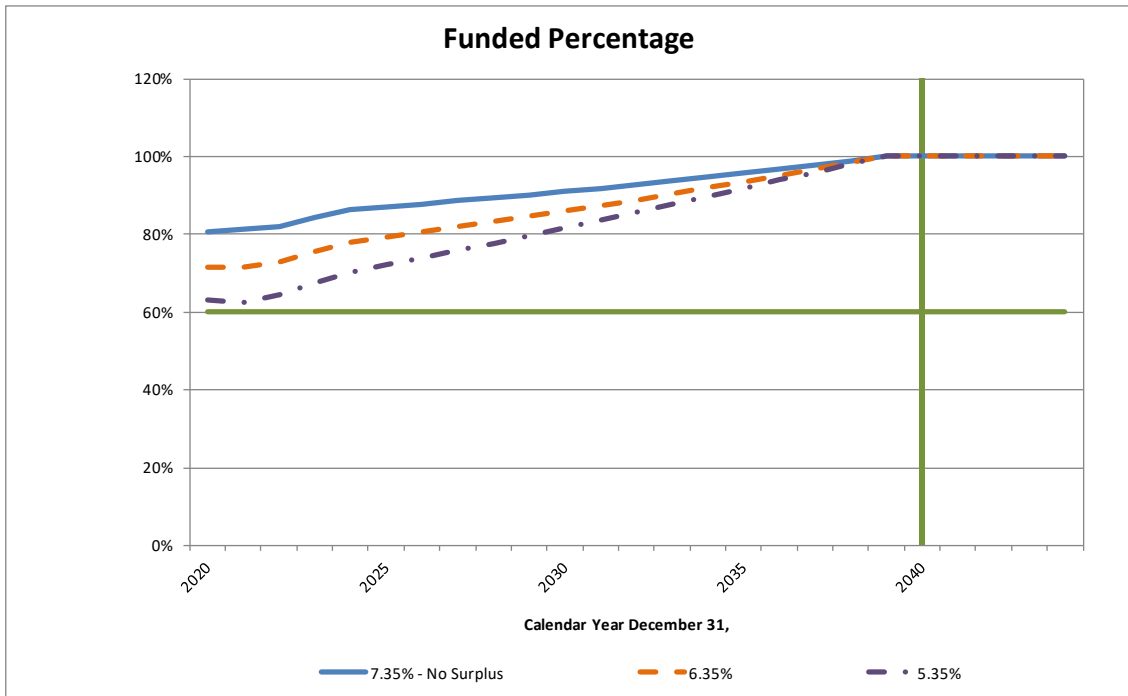
The 7.35% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.35% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. 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.



Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	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	\$ 149,653,324	\$ 120,469,628	80%	\$ 5,439,504
2021	2023	\$ 155,900,000	\$ 126,800,000	81%	\$ 5,580,000
2022	2024	\$ 162,400,000	\$ 133,300,000	82%	\$ 5,770,000
2023	2025	\$ 168,900,000	\$ 142,400,000	84%	\$ 5,720,000
2024	2026	\$ 175,300,000	\$ 151,200,000	86%	\$ 5,720,000
2025	2027	\$ 181,600,000	\$ 158,200,000	87%	\$ 5,880,000
<b>6.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 168,455,326	\$ 120,469,628	72%	\$ 7,694,016
2021	2023	\$ 175,400,000	\$ 125,600,000	72%	\$ 7,980,000
2022	2024	\$ 182,600,000	\$ 133,000,000	73%	\$ 8,250,000
2023	2025	\$ 189,700,000	\$ 143,200,000	76%	\$ 8,290,000
2024	2026	\$ 196,800,000	\$ 153,200,000	78%	\$ 8,380,000
2025	2027	\$ 203,800,000	\$ 161,500,000	79%	\$ 8,630,000
<b>5.35%<sup>1</sup> - NO PHASE-IN</b>					
2020	2022	\$ 191,202,780	\$ 120,469,628	63%	\$ 10,310,712
2021	2023	\$ 198,900,000	\$ 124,400,000	63%	\$ 10,800,000
2022	2024	\$ 206,900,000	\$ 133,100,000	64%	\$ 11,100,000
2023	2025	\$ 214,900,000	\$ 144,900,000	67%	\$ 11,300,000
2024	2026	\$ 222,800,000	\$ 156,400,000	70%	\$ 11,500,000
2025	2027	\$ 230,700,000	\$ 166,400,000	72%	\$ 11,800,000

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

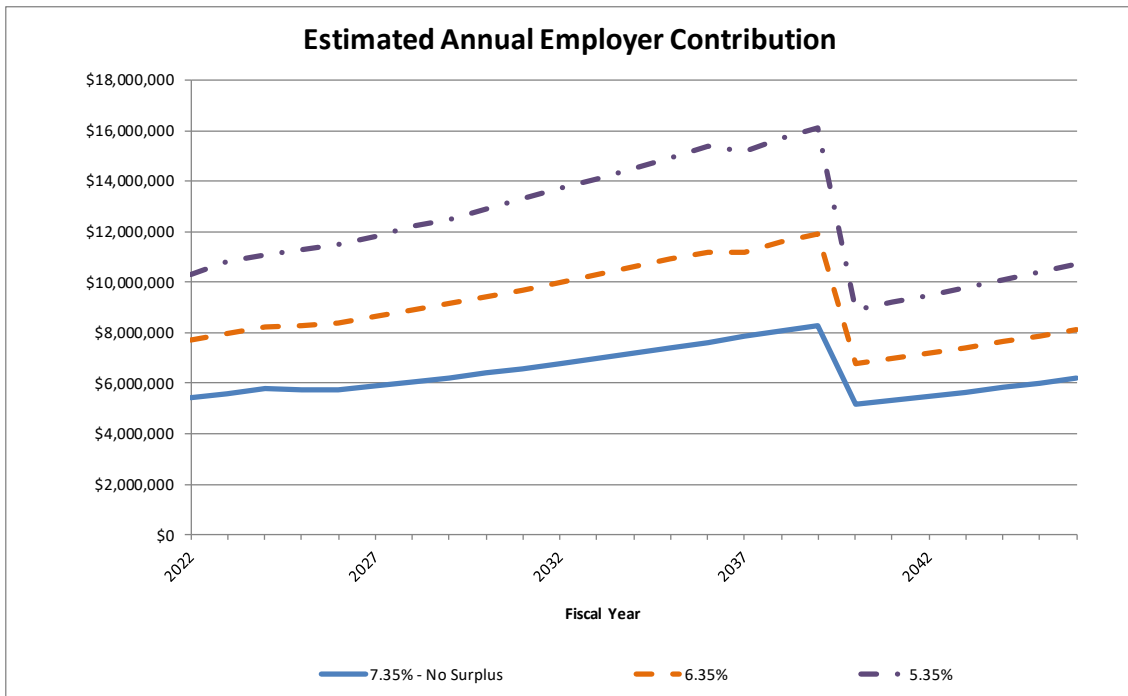
<sup>2</sup> Valuation Assets do not include assets from Surplus divisions, if any.



**Notes:**

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

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.

## Table 1: Employer Contribution Details for the Fiscal Year Beginning January 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>									
02 - Sheriff Union	13.30%	2.49%	10.81%	11.88%	22.69%	18.41%			0.89%
04 - S.T.A.R.S.	8.36%	1.27%	7.09%	2.93%	10.02%	8.79%			0.85%
06 - CMH Union	9.03%	0.00%	9.03%	0.94%	9.97%	8.54%			0.84%
10 - Health Union	9.40%	0.00%	9.40%	5.17%	14.57%	11.28%			0.83%
11 - Gnrl Non Union	9.04%	0.00%	9.04%	8.08%	17.12%	13.99%			0.82%
12 - General Union	9.34%	0.00%	9.34%	6.74%	16.08%	12.63%			0.82%
13 - Elected & Appt. Dept Heads	11.45%	2.53%	8.92%	2.82%	11.74%	9.07%			0.79%
20 - Dispatch Union	12.08%	0.00%	12.08%	3.98%	16.06%	11.38%			0.91%
40 - MCF Non Union	10.52%	0.00%	10.52%	14.84%	25.36%	22.45%			0.84%
60 - CMH Non Union	8.90%	0.00%	8.90%	2.16%	11.06%	8.76%			0.79%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
02 - Sheriff Union			\$ 41,446	\$ 45,560	\$ 87,006	\$ 70,602			
04 - S.T.A.R.S.			52,997	21,885	74,882	65,669			
06 - CMH Union			27,279	2,850	30,129	25,806			
10 - Health Union			13,472	7,408	20,880	16,164			
11 - Gnrl Non Union			17,796	15,915	33,711	27,549			
12 - General Union			20,980	15,135	36,115	28,375			
13 - Elected & Appt. Dept Heads			10,399	3,293	13,692	10,581			
20 - Dispatch Union			8,923	2,939	11,862	8,403			
40 - MCF Non Union			56,604	79,853	136,457	120,800			
60 - CMH Non Union			6,886	1,672	8,558	6,782			
<b>Total Municipality</b>			<b>\$ 256,782</b>	<b>\$ 196,510</b>	<b>\$ 453,292</b>	<b>\$ 380,731</b>			
<b>Estimated Annual Contribution<sup>3</sup></b>			<b>\$ 3,081,384</b>	<b>\$ 2,358,120</b>	<b>\$ 5,439,504</b>	<b>\$ 4,568,772</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

### 02 - Sheriff Union: 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>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	2.49%	2.49%
<b>Act 88:</b>	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

### 04 - S.T.A.R.S.: Open Division

	2020 Valuation	2019 Valuation
<b>Benefit Multiplier:</b>	2.00% Multiplier (no max)	2.00% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	50/25	50/25
	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	1.27%	1.27%
<b>Act 88:</b>	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

### 06 - CMH Union: Open Division

	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>	-	-
<b>Early Retirement (Reduced):</b>	50/25	50/25
	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

## 10 - Health Union: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

## 11 - Gnrl Non Union: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

## 12 - General Union: Open Division

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)





**13 - Elected & Appt. Dept Heads: Open Division**

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.53%	2.53%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

**20 - Dispatch Union: Open Division**

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

**40 - MCF Non Union: Open Division**

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

**60 - CMH Non Union: Open Division**

	2020 Valuation	2019 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0.00%	0.00%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)



### 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>
<b>02 - Sheriff Union</b>							
Active Employees	74	\$ 4,336,791	76	\$ 4,336,989	43.1	14.2	14.6
Vested Former Employees	15	97,195	16	93,370	46.2	5.5	15.5
Retirees and Beneficiaries	61	1,373,730	57	1,296,716	68.2		
Pending Refunds	22		24				
<b>04 - S.T.A.R.S.</b>							
Active Employees	242	\$ 8,454,904	277	\$ 8,816,095	38.6	6.2	6.3
Vested Former Employees	57	374,919	50	289,614	47.4	11.4	13.0
Retirees and Beneficiaries	81	626,910	80	593,399	70.9		
Pending Refunds	780		714				
<b>06 - CMH Union</b>							
Active Employees	79	\$ 3,417,031	78	\$ 3,092,277	40.9	6.9	6.9
Vested Former Employees	14	134,416	12	113,545	46.1	10.3	11.7
Retirees and Beneficiaries	34	532,393	34	512,323	68.8		
Pending Refunds	7		7				
<b>10 - Health Union</b>							
Active Employees	40	\$ 1,621,113	37	\$ 1,428,943	48.6	12.9	13.6
Vested Former Employees	10	89,605	13	107,536	54.1	11.1	15.7
Retirees and Beneficiaries	48	547,033	46	511,843	70.6		
Pending Refunds	2		2				
<b>11 - Gnrl Non Union</b>							
Active Employees	42	\$ 2,226,645	49	\$ 2,472,344	50.6	13.3	13.3
Vested Former Employees	11	171,117	13	178,946	51.4	12.7	15.7
Retirees and Beneficiaries	47	768,675	38	628,426	72.0		
Pending Refunds	1		1				
<b>12 - General Union</b>							
Active Employees	62	\$ 2,540,727	63	\$ 2,506,474	48.8	12.6	12.6
Vested Former Employees	16	218,600	15	158,676	50.0	15.2	16.8
Retirees and Beneficiaries	46	710,913	45	664,218	73.2		
Pending Refunds	0		0				
<b>13 - Elected &amp; Appt. Dept Heads</b>							
Active Employees	24	\$ 1,318,676	24	\$ 1,334,188	60.1	17.7	19.2
Vested Former Employees	4	42,003	5	101,539	55.8	7.5	20.3
Retirees and Beneficiaries	26	678,890	25	522,034	71.9		
Pending Refunds	4		4				

**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>20 - Dispatch Union</b>							
Active Employees	16	\$ 835,531	16	\$ 812,163	43.0	12.4	12.7
Vested Former Employees	3	31,005	3	31,005	45.9	10.1	15.1
Retirees and Beneficiaries	7	147,190	7	147,190	64.6		
Pending Refunds	0		0				
<b>40 - MCF Non Union</b>							
Active Employees	94	\$ 6,086,123	103	\$ 5,930,524	44.4	10.7	10.8
Vested Former Employees	21	339,360	21	354,793	45.3	11.5	13.2
Retirees and Beneficiaries	71	1,340,910	66	1,195,297	69.6		
Pending Refunds	12		10				
<b>60 - CMH Non Union</b>							
Active Employees	12	\$ 875,099	14	\$ 931,133	45.9	13.5	13.5
Vested Former Employees	4	92,051	3	33,240	56.7	17.9	22.5
Retirees and Beneficiaries	10	246,578	11	254,067	69.5		
Pending Refunds	0		0				
<b>Total Municipality</b>							
Active Employees	<b>685</b>	<b>\$ 31,712,640</b>	<b>737</b>	<b>\$ 31,661,130</b>	<b>43.4</b>	<b>9.8</b>	<b>10.0</b>
Vested Former Employees	<b>155</b>	<b>1,590,271</b>	<b>151</b>	<b>1,462,264</b>	<b>48.3</b>	<b>11.3</b>	<b>14.4</b>
Retirees and Beneficiaries	<b>431</b>	<b>6,973,222</b>	<b>409</b>	<b>6,325,514</b>	<b>70.4</b>		
Pending Refunds	<u><b>828</b></u>		<u><b>762</b></u>				
<b>Total Participants</b>	<b>2,099</b>		<b>2,059</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>
02 - Sheriff Union	\$ 21,924,781	\$ 1,565,719	\$ 19,711,550	\$ 1,561,380
04 - S.T.A.R.S.	14,200,595	806,433	12,408,897	736,195
06 - CMH Union	10,280,985	18,546	9,262,340	20,926
10 - Health Union	9,362,318	12,568	8,488,494	24,050
11 - Gnrl Non Union	12,703,065	17,905	11,498,719	16,631
12 - General Union	12,933,651	2,203	11,556,657	5,172
13 - Elected & Appt. Dept Heads	11,182,037	319,227	9,689,893	420,439
20 - Dispatch Union	3,943,826	0	3,550,904	0
40 - MCF Non Union	19,014,458	44,039	16,970,944	39,341
60 - CMH Non Union	5,558,372	3,714	5,064,038	3,710
<b>Municipality Total<sup>3</sup></b>	<b>\$ 121,104,089</b>	<b>\$ 2,790,353</b>	<b>\$ 108,202,435</b>	<b>\$ 2,827,844</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$123,894,442</b>		<b>\$111,030,279</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.

### 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	\$ 2,701,704		\$ 120,400	\$ 4,108,154	\$ (2,887,422)	\$ (3,985)	\$ 0	\$ 73,526,774
2011	2,392,517	\$ 1,276,817	118,290	4,243,170	(3,227,971)	(18,286)	0	78,311,311
2012	2,469,808	12,604	118,808	3,720,946	(3,576,831)	(2,462)	11,703	81,065,887
2013	2,427,970	104,953	201,995	4,942,034	(3,871,478)	(12,924)	0	84,858,437
2014	2,590,936	1,456,298	213,190	5,008,867	(4,315,512)	(3,232)	2,842	89,811,826
2015	2,866,216	0	224,327	4,518,511	(4,713,623)	(1,488)	(3,220)	92,702,549
2016	3,002,820	1,914,751	222,970	5,202,130	(5,116,753)	(32,929)	(1)	97,895,537
2017	3,374,657	2,376,293	233,100	6,149,445	(5,494,078)	(5,719)	66,453	104,595,688
2018	3,466,895	900,700	236,837	3,910,867	(5,820,903)	(6,924)	1	107,283,161
2019	3,542,931	2,369,740	248,847	5,292,532	(6,205,919)	(37,747)	0	112,493,545
2020	3,921,582	1,293,126	258,813	9,200,871	(6,648,265)	(50,044)	0	120,469,628

**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			
02 - Sheriff Union	\$ 14,517,797	\$ 526,539	\$ 14,601,473	\$ 43,470	\$ 29,689,279	\$ 22,841,152	76.9%	\$ 6,848,127
04 - S.T.A.R.S.	8,811,754	2,663,004	6,106,617	262,308	17,843,683	14,592,189	81.8%	3,251,494
06 - CMH Union	4,292,439	583,340	5,481,186	6,865	10,363,830	10,014,821	96.6%	349,009
10 - Health Union	4,066,711	746,736	5,390,196	8,673	10,212,316	9,115,736	89.3%	1,096,580
11 - Gnrl Non Union	5,717,574	1,195,079	7,829,431	770	14,742,854	12,369,325	83.9%	2,373,529
12 - General Union	6,577,171	1,491,626	6,759,458	0	14,828,255	12,578,268	84.8%	2,249,987
13 - Elected & Appt. Dept Heads	4,538,049	270,976	6,882,249	2,676	11,693,950	11,183,335	95.6%	510,615
20 - Dispatch Union	2,380,338	192,823	1,687,251	0	4,260,412	3,834,806	90.0%	425,606
40 - MCF Non Union	14,234,443	2,247,765	13,918,445	3,870	30,404,523	18,531,663	61.0%	11,872,860
60 - CMH Non Union	2,214,806	989,078	2,410,338	0	5,614,222	5,408,333	96.3%	205,889
<b>Total</b>	<b>\$ 67,351,082</b>	<b>\$ 10,906,966</b>	<b>\$ 71,066,644</b>	<b>\$ 328,632</b>	<b>\$ 149,653,324</b>	<b>\$ 120,469,628</b>	<b>80.5%</b>	<b>\$ 29,183,696</b>

**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	\$ 62,191,494	\$ 55,548,007	89%	\$ 6,643,487
2007	67,484,457	61,321,749	91%	6,162,708
2008	72,924,490	64,884,220	89%	8,040,270
2009	75,451,001	69,487,923	92%	5,963,078
2010	79,860,857	73,526,774	92%	6,334,083
2011	85,385,423	78,311,311	92%	7,074,112
2012	89,282,225	81,065,887	91%	8,216,338
2013	94,903,895	84,858,437	89%	10,045,458
2014	101,824,866	89,811,826	88%	12,013,040
2015	112,789,127	92,702,549	82%	20,086,578
2016	117,376,217	97,895,537	83%	19,480,680
2017	121,537,828	104,595,688	86%	16,942,140
2018	126,978,299	107,283,161	84%	19,695,138
2019	136,138,342	112,493,545	83%	23,644,797
2020	149,653,324	120,469,628	80%	29,183,696

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 02 - Sheriff Union

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 18,864,025	\$ 16,376,070	87%	\$ 2,487,955
2011	19,600,877	16,856,101	86%	2,744,776
2012	20,140,990	17,176,086	85%	2,964,904
2013	21,155,855	17,829,275	84%	3,326,580
2014	22,552,782	18,334,793	81%	4,217,989
2015	24,783,267	18,659,484	75%	6,123,783
2016	25,234,701	19,305,011	77%	5,929,690
2017	25,289,813	20,492,842	81%	4,796,971
2018	26,209,867	21,010,005	80%	5,199,862
2019	27,899,003	21,553,286	77%	6,345,717
2020	29,689,279	22,841,152	77%	6,848,127

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

**Table 9-02: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	74	\$ 3,549,868	12.17%	2.49%
2011	73	3,563,819	12.05%	2.49%
2012	73	3,622,005	12.73%	2.49%
2013	73	3,623,507	13.43%	2.49%
2014	73	3,771,938	14.75%	2.49%
2015	75	3,900,580	17.95%	2.49%
2016	74	3,958,957	17.52%	2.49%
2017	76	4,130,920	15.52%	2.49%
2018	75	4,200,275	16.48%	2.49%
2019	76	4,336,989	18.86%	2.49%
2020	74	4,336,791	22.69%	2.49%

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 04 - S.T.A.R.S.

**Table 8-04: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 8,555,727	\$ 7,741,169	90%	\$ 814,558
2011	9,432,054	8,301,368	88%	1,130,686
2012	9,947,561	8,889,986	89%	1,057,575
2013	11,055,158	9,554,589	86%	1,500,569
2014	11,568,898	10,114,388	87%	1,454,510
2015	12,981,167	10,795,876	83%	2,185,291
2016	13,220,635	11,377,489	86%	1,843,146
2017	14,127,049	12,189,728	86%	1,937,321
2018	14,911,158	12,696,683	85%	2,214,475
2019	15,871,804	13,318,331	84%	2,553,473
2020	17,843,683	14,592,189	82%	3,251,494

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

**Table 9-04: 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	237	\$ 5,527,623	7.99%	0.00%
2011	304	7,210,900	7.75%	0.00%
2012	306	7,290,485	7.78%	0.00%
2013	301	7,164,177	7.89%	1.27%
2014	288	7,237,326	7.79%	1.27%
2015	288	7,802,578	8.32%	1.27%
2016	264	7,176,151	8.12%	1.27%
2017	277	7,843,521	8.13%	1.27%
2018	269	7,883,982	8.44%	1.27%
2019	277	8,816,095	8.73%	1.27%
2020	242	8,454,904	10.02%	1.27%

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 06 - CMH Union

**Table 8-06: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 5,152,176	\$ 4,946,375	96%	\$ 205,801
2011	5,712,715	5,626,574	99%	86,141
2012	6,186,499	6,006,035	97%	180,464
2013	6,545,267	6,325,525	97%	219,742
2014	7,293,162	6,889,317	95%	403,845
2015	8,080,012	7,098,971	88%	981,041
2016	8,541,701	7,738,353	91%	803,348
2017	8,659,542	8,428,060	97%	231,482
2018	8,932,264	8,488,854	95%	443,410
2019	9,418,102	9,405,609	100%	12,493
2020	10,363,830	10,014,821	97%	349,009

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

**Table 9-06: 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	64	\$ 2,438,785	9.21%	0.00%
2011	62	2,411,865	8.57%	0.00%
2012	63	2,399,198	8.71%	0.00%
2013	60	2,362,295	8.72%	0.00%
2014	66	2,650,699	8.95%	0.00%
2015	64	2,689,589	10.37%	0.00%
2016	62	2,588,429	10.01%	0.00%
2017	63	2,667,609	8.55%	0.00%
2018	65	2,629,706	9.15%	0.00%
2019	78	3,092,277	7.93%	0.00%
2020	79	3,417,031	9.97%	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 - Health Union

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 6,282,205	\$ 6,221,094	99%	\$ 61,111
2011	6,641,977	6,539,902	99%	102,075
2012	6,907,582	6,605,789	96%	301,793
2013	7,150,032	6,724,524	94%	425,508
2014	7,485,077	7,306,241	98%	178,836
2015	8,175,205	7,406,424	91%	768,781
2016	8,400,053	7,704,587	92%	695,466
2017	8,470,153	8,246,291	97%	223,862
2018	8,660,353	8,386,473	97%	273,880
2019	9,403,706	8,624,730	92%	778,976
2020	10,212,316	9,115,736	89%	1,096,580

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	35	\$ 1,243,956	8.85%	0.00%
2011	36	1,238,602	8.62%	0.00%
2012	35	1,236,547	9.73%	0.00%
2013	35	1,204,007	10.44%	0.00%
2014	36	1,294,086	9.05%	0.00%
2015	36	1,318,531	12.14%	0.00%
2016	37	1,377,505	11.57%	0.00%
2017	37	1,417,705	9.24%	0.00%
2018	39	1,485,355	9.64%	0.00%
2019	37	1,428,943	12.57%	0.00%
2020	40	1,621,113	14.57%	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 - Gnrl Non Union

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 7,765,800	\$ 8,327,804	107%	\$ (562,004)
2011	8,256,330	8,680,352	105%	(424,022)
2012	8,689,048	8,919,726	103%	(230,678)
2013	8,995,568	9,176,982	102%	(181,414)
2014	9,690,233	9,460,139	98%	230,094
2015	10,724,425	9,641,494	90%	1,082,931
2016	11,495,764	10,486,873	91%	1,008,891
2017	11,687,540	10,885,312	93%	802,228
2018	12,447,999	11,175,024	90%	1,272,975
2019	13,611,991	11,667,110	86%	1,944,881
2020	14,742,854	12,369,325	84%	2,373,529

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	56	\$ 2,515,211	6.25%	0.00%
2011	53	2,388,523	6.39%	0.00%
2012	52	2,334,269	7.22%	0.00%
2013	45	2,085,028	7.19%	0.00%
2014	47	2,142,519	8.86%	0.00%
2015	49	2,287,567	11.15%	0.00%
2016	48	2,292,774	10.90%	0.00%
2017	46	2,270,725	10.52%	0.00%
2018	46	2,312,265	12.07%	0.00%
2019	49	2,472,344	14.23%	0.00%
2020	42	2,226,645	17.12%	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 12 - General Union

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 8,573,000	\$ 8,288,251	97%	\$ 284,749
2011	9,094,428	8,919,341	98%	175,087
2012	9,477,282	9,157,210	97%	320,072
2013	10,042,023	9,518,699	95%	523,324
2014	10,754,376	10,415,100	97%	339,276
2015	12,000,053	10,708,134	89%	1,291,919
2016	11,990,124	10,940,029	91%	1,050,095
2017	12,484,175	11,631,736	93%	852,439
2018	12,955,448	11,709,997	90%	1,245,451
2019	13,476,877	11,714,202	87%	1,762,675
2020	14,828,255	12,578,268	85%	2,249,987

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	68	\$ 2,434,100	8.75%	0.00%
2011	66	2,349,500	8.17%	0.00%
2012	66	2,370,512	8.64%	0.00%
2013	67	2,421,245	9.15%	0.00%
2014	68	2,518,253	8.60%	0.00%
2015	70	2,626,856	11.11%	0.00%
2016	65	2,425,005	10.68%	0.00%
2017	66	2,572,555	10.12%	0.00%
2018	65	2,619,949	11.30%	0.00%
2019	63	2,506,474	13.26%	0.00%
2020	62	2,540,727	16.08%	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 13 - Elected & Appt. Dept Heads

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 6,911,978	\$ 6,745,462	98%	\$ 166,516
2011	7,159,028	7,370,412	103%	(211,384)
2012	7,416,706	7,533,800	102%	(117,094)
2013	7,688,872	7,768,762	101%	(79,890)
2014	7,945,278	7,966,793	100%	(21,515)
2015	8,598,243	8,131,550	95%	466,693
2016	9,163,879	8,812,991	96%	350,888
2017	9,952,403	9,737,092	98%	215,311
2018	10,359,158	9,976,673	96%	382,485
2019	10,897,977	10,243,576	94%	654,401
2020	11,693,950	11,183,335	96%	510,615

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	24	\$ 1,083,981	8.68%	2.53%
2011	24	1,058,033	5.09%	2.53%
2012	23	1,033,001	6.40%	2.53%
2013	23	1,059,325	7.20%	2.53%
2014	23	1,089,442	7.81%	2.53%
2015	24	1,161,536	10.63%	2.53%
2016	22	1,056,163	10.13%	2.53%
2017	25	1,270,726	9.58%	2.53%
2018	24	1,290,681	9.97%	2.53%
2019	24	1,334,188	11.72%	2.53%
2020	24	1,318,676	11.74%	2.53%

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 20 - Dispatch Union

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 1,709,932	\$ 1,408,578	82%	\$ 301,354
2011	1,877,994	1,587,521	85%	290,473
2012	2,010,409	1,706,187	85%	304,222
2013	2,201,118	1,863,562	85%	337,556
2014	2,434,881	2,170,995	89%	263,886
2015	2,753,847	2,311,935	84%	441,912
2016	2,877,322	2,640,725	92%	236,597
2017	3,118,242	2,967,693	95%	150,549
2018	3,313,577	3,225,505	97%	88,072
2019	3,787,008	3,597,701	95%	189,307
2020	4,260,412	3,834,806	90%	425,606

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2010	16	\$ 692,364	11.67%	0.00%
2011	16	705,498	11.21%	0.00%
2012	16	708,848	11.55%	0.00%
2013	16	714,011	11.84%	0.00%
2014	13	619,208	11.45%	0.00%
2015	16	745,795	12.63%	0.00%
2016	15	684,837	10.97%	0.00%
2017	16	724,132	10.02%	0.00%
2018	15	733,705	9.60%	0.00%
2019	16	812,163	10.64%	0.00%
2020	16	835,531	16.06%	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 40 - MCF Non Union

**Table 8-40: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 13,313,568	\$ 10,837,700	81%	\$ 2,475,868
2011	14,665,104	11,561,516	79%	3,103,588
2012	15,454,455	12,140,833	79%	3,313,622
2013	16,800,339	12,973,786	77%	3,826,553
2014	18,601,707	13,764,128	74%	4,837,579
2015	20,642,980	14,356,008	70%	6,286,972
2016	22,132,421	15,069,028	68%	7,063,393
2017	23,198,953	15,849,440	68%	7,349,513
2018	24,443,631	16,380,853	67%	8,062,778
2019	26,653,291	17,234,464	65%	9,418,827
2020	30,404,523	18,531,663	61%	11,872,860

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

**Table 9-40: 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	96	\$ 4,288,706	13.18%	0.00%
2011	95	4,459,948	13.32%	0.00%
2012	93	4,361,594	13.98%	0.00%
2013	97	4,558,300	14.46%	0.00%
2014	95	4,580,417	15.79%	0.00%
2015	91	4,648,259	18.01%	0.00%
2016	93	5,135,406	18.23%	0.00%
2017	94	5,416,645	18.33%	0.00%
2018	102	5,869,347	18.75%	0.00%
2019	103	5,930,524	21.27%	0.00%
2020	94	6,086,123	25.36%	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 60 - CMH Non Union

**Table 8-60: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2010	\$ 2,732,446	\$ 2,634,271	96%	\$ 98,175
2011	2,944,916	2,868,224	97%	76,692
2012	3,051,693	2,930,235	96%	121,458
2013	3,269,663	3,122,733	96%	146,930
2014	3,498,472	3,389,932	97%	108,540
2015	4,049,928	3,592,673	89%	457,255
2016	4,319,617	3,820,451	88%	499,166
2017	4,549,958	4,167,494	92%	382,464
2018	4,744,844	4,233,094	89%	511,750
2019	5,118,583	5,134,536	100%	(15,953)
2020	5,614,222	5,408,333	96%	205,889

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

**Table 9-60: 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	10	\$ 582,803	8.77%	0.00%
2011	9	537,109	8.23%	0.00%
2012	9	546,357	8.85%	0.00%
2013	11	638,867	9.12%	0.00%
2014	12	721,577	8.62%	0.00%
2015	14	853,145	11.08%	0.00%
2016	14	885,501	11.19%	0.00%
2017	11	650,991	11.26%	0.00%
2018	12	741,002	12.31%	0.00%
2019	14	931,133	7.76%	0.00%
2020	12	875,099	11.06%	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.

## Table 10: Division-Based Layered Amortization Schedule

### Division 02 - Sheriff Union

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 6,123,783	23	\$ 6,412,483	18	\$ 512,640
(Gain)/Loss	12/31/2016	(384,286)	22	(416,930)	18	(33,336)
(Gain)/Loss	12/31/2017	(1,157,452)	21	(1,247,430)	18	(99,720)
(Gain)/Loss	12/31/2018	452,807	20	485,809	18	38,832
(Gain)/Loss	12/31/2019	223,066	19	237,923	18	19,020
Assumption	12/31/2019	867,049	19	903,766	18	72,252
Experience	12/31/2020	431,438	18	463,149	18	37,032
<b>Total</b>				<b>\$ 6,838,770</b>		<b>\$ 546,720</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.

**Table 10-04: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 2,185,291	23	\$ 2,284,326	18	\$ 182,616
(Gain)/Loss	12/31/2016	(406,460)	22	(440,992)	18	(35,256)
(Gain)/Loss	12/31/2017	106,620	21	114,908	18	9,192
(Gain)/Loss	12/31/2018	256,667	20	275,370	18	22,020
(Gain)/Loss	12/31/2019	(113,795)	19	(121,376)	18	(9,708)
Assumption	12/31/2019	423,622	19	443,684	18	35,472
Experience	12/31/2020	679,099	18	729,013	18	58,284
<b>Total</b>				<b>\$ 3,284,933</b>		<b>\$ 262,620</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 06 - CMH Union

**Table 10-06: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Experience	12/31/2020	350,885	15	376,675	15	34,200
<b>Total</b>				<b>\$ 376,675</b>		<b>\$ 34,200</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 - Health Union

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 768,781	23	\$ 830,784	18	\$ 66,420
(Gain)/Loss	12/31/2016	(122,547)	22	(132,952)	18	(10,632)
(Gain)/Loss	12/31/2017	(469,186)	21	(505,647)	18	(40,428)
(Gain)/Loss	12/31/2018	81,748	20	87,707	18	7,008
(Gain)/Loss	12/31/2019	224,344	19	239,284	18	19,128
Assumption	12/31/2019	274,379	19	290,691	18	23,244
Experience	12/31/2020	281,497	18	302,187	18	24,156
<b>Total</b>				<b>\$ 1,112,054</b>		<b>\$ 88,896</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 - Gnrl Non Union

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,082,931	23	\$ 1,165,031	18	\$ 93,132
(Gain)/Loss	12/31/2016	(138,278)	22	(150,022)	18	(11,988)
(Gain)/Loss	12/31/2017	(205,812)	21	(221,795)	18	(17,736)
(Gain)/Loss	12/31/2018	479,953	20	514,924	18	41,160
(Gain)/Loss	12/31/2019	226,472	19	241,562	18	19,308
Assumption	12/31/2019	405,488	19	426,562	18	34,104
Experience	12/31/2020	384,537	18	412,800	18	33,000
<b>Total</b>				<b>\$ 2,389,062</b>		<b>\$ 190,980</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 - General Union

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,291,919	23	\$ 1,393,281	18	\$ 111,384
(Gain)/Loss	12/31/2016	(321,890)	22	(349,226)	18	(27,924)
(Gain)/Loss	12/31/2017	(184,466)	21	(198,801)	18	(15,888)
(Gain)/Loss	12/31/2018	400,384	20	429,560	18	34,344
(Gain)/Loss	12/31/2019	96,482	19	102,903	18	8,232
Assumption	12/31/2019	386,257	19	406,687	18	32,508
Experience	12/31/2020	454,078	18	487,453	18	38,964
<b>Total</b>				<b>\$ 2,271,857</b>		<b>\$ 181,620</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 - Elected & Appt. Dept Heads

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 466,693	23	\$ 512,447	18	\$ 40,968
(Gain)/Loss	12/31/2016	(153,740)	22	(166,804)	18	(13,332)
(Gain)/Loss	12/31/2017	(127,968)	21	(137,907)	18	(11,028)
(Gain)/Loss	12/31/2018	174,798	20	187,540	18	14,988
(Gain)/Loss	12/31/2019	(62,572)	19	(66,736)	18	(5,340)
Assumption	12/31/2019	319,766	19	339,787	18	27,168
Experience	12/31/2020	(162,021)	18	(173,930)	18	(13,908)
<b>Total</b>				<b>\$ 494,397</b>		<b>\$ 39,516</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 20 - Dispatch Union

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 441,912	23	\$ 462,544	18	\$ 36,972
(Gain)/Loss	12/31/2016	(218,840)	22	(237,435)	18	(18,984)
(Gain)/Loss	12/31/2017	(73,035)	21	(78,714)	18	(6,288)
(Gain)/Loss	12/31/2018	(58,306)	20	(62,550)	18	(5,004)
(Gain)/Loss	12/31/2019	(18,773)	19	(20,018)	18	(1,596)
Assumption	12/31/2019	123,801	19	131,792	18	10,536
Experience	12/31/2020	228,729	18	245,541	18	19,632
<b>Total</b>				<b>\$ 441,160</b>		<b>\$ 35,268</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 40 - MCF Non Union

**Table 10-40: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 6,286,972	23	\$ 6,557,303	18	\$ 524,220
(Gain)/Loss	12/31/2016	606,588	22	658,112	18	52,608
(Gain)/Loss	12/31/2017	183,595	21	197,858	18	15,816
(Gain)/Loss	12/31/2018	651,170	20	698,619	18	55,848
(Gain)/Loss	12/31/2019	448,004	19	477,841	18	38,196
Assumption	12/31/2019	825,705	19	847,684	18	67,764
Experience	12/31/2020	2,374,618	18	2,549,152	18	203,784
<b>Total</b>				<b>\$ 11,986,569</b>		<b>\$ 958,236</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 60 - CMH Non Union

**Table 10-60: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 1/1/2022		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Experience	12/31/2020	205,889	15	221,022	15	20,064
<b>Total</b>				<b>\$ 221,022</b>		<b>\$ 20,064</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 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:	431
Inactive employees entitled to but not yet receiving benefits (including refunds):	983
Active employees:	<u>685</u>
	2,099
Total Pension Liability as of 12/31/2019 measurement date:	\$ 132,447,512
Total Pension Liability as of 12/31/2020 measurement date:	\$ 145,468,810
Service Cost for the year ending on the 12/31/2020 measurement date:	\$ 2,632,972
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ 1,064,682
- Changes in assumptions <sup>2</sup> :	\$ 6,110,427
Average expected remaining service lives of all employees (active and inactive):	3

<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):	\$ 31,712,640
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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:	\$ 17,951,902	\$ 0	\$ (14,994,701)

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:		431
Inactive employees entitled to but not yet receiving benefits (including refunds):		983
Active employees:		<u>685</u>
		2,099
Total Pension Liability as of 12/31/2020 measurement date:	\$	137,936,646
Total Pension Liability as of 12/31/2021 measurement date:	\$	151,586,430
Service Cost for the year ending on the 12/31/2021 measurement date:	\$	2,705,035
Change in the Total Pension Liability due to:		
- Benefit changes <sup>1</sup> :	\$	0
- Differences between expected and actual experience <sup>2</sup> :	\$	1,529,789
- Changes in assumptions <sup>2</sup> :	\$	6,941,075
Average expected remaining service lives of all employees (active and inactive):		3

<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):	\$	31,712,640
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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:	\$ 18,581,917	\$ 0	\$ (15,523,274)

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

# Benefit Provision History

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

## 02 - Sheriff Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/1999	Benefit B-4 (80% max)
1/1/1999	Member Contribution Rate 2.49%
1/1/1994	Benefit B-3 (80% max)
1/1/1991	Benefit B-2
1/1/1991	Benefit F50 (With 25 Years of Service)
1/1/1988	Benefit C-2/Base B-1
6/1/1985	Member Contribution Rate 0.00%
1/1/1981	Benefit F55 (With 25 Years of Service)
1/1/1981	Member Contribution Rate 5.00%
4/6/1978	Exclude Temporary Employees
1/1/1973	Benefit C-1 (Old)
10/30/1970	Covered by Act 88
6/1/1966	Benefit FAC-5 (5 Year Final Average Compensation)
6/1/1966	10 Year Vesting
6/1/1966	Benefit C (Old)
6/1/1966	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 04 - S.T.A.R.S.

10/1/2018	Service Credit Purchase Estimates - No
10/1/2017	Probationary Period 3 Months
12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2013	Benefit F55 (With 25 Years of Service)
2/1/2013	Member Contribution Rate 1.27%
5/1/2007	Member Contribution Rate 0.00%
10/1/2005	Benefit B-2
10/1/2005	Member Contribution Rate 2.33%
1/1/1987	Member Contribution Rate 0.00%
1/1/1973	Benefit C-1 (Old)
10/30/1970	Covered by Act 88
6/1/1966	Benefit FAC-5 (5 Year Final Average Compensation)
6/1/1966	10 Year Vesting
6/1/1966	Benefit C (Old)
6/1/1966	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
6/1/1966	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years



## 06 - CMH Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
4/1/2003	Benefit B-3 (80% max)
5/1/2001	Member Contribution Rate 0.00%
1/1/2001	Member Contribution Rate 4.14%
1/1/2000	Member Contribution Rate 4.41%
1/1/1999	Member Contribution Rate 0.23%
11/1/1998	Benefit FAC-5 (5 Year Final Average Compensation)
11/1/1998	10 Year Vesting
11/1/1998	Benefit B-2
11/1/1998	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 10 - Health Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2000	Benefit B-3 (80% max)
3/1/1991	Benefit B-2
1/1/1986	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1986	10 Year Vesting
1/1/1986	Member Contribution Rate 0.00%
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 11 - Gnrl Non Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
12/31/2000	Benefit B-3 (80% max)
12/1/1990	Benefit B-2
1/1/1986	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1986	10 Year Vesting
1/1/1986	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 12 - General Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2000	Benefit B-3 (80% max)
1/1/1991	Benefit B-2



## 12 - General Union

1/1/1986	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1986	10 Year Vesting
1/1/1986	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 13 - Elected & Appt. Dept Heads

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2005	Benefit B-4 (80% max)
1/1/2005	Member Contribution Rate 2.53%
1/1/2001	Benefit B-3 (80% max)
12/1/1990	Benefit B-2
6/1/1985	Benefit FAC-5 (5 Year Final Average Compensation)
6/1/1985	10 Year Vesting
6/1/1985	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 20 - Dispatch Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
12/31/2000	Benefit FAC-5 (5 Year Final Average Compensation)
12/31/2000	10 Year Vesting
12/31/2000	Benefit B-3 (80% max)
12/31/2000	Benefit F50 (With 25 Years of Service)
12/31/2000	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 40 - MCF Non Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2008	Benefit B-4 (80% max)
1/1/1999	Benefit B-3 (80% max)
1/1/1999	Benefit F55 (With 25 Years of Service)
1/1/1991	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1991	10 Year Vesting
1/1/1991	Benefit B-2
1/1/1991	Benefit F55 (With 30 Years of Service)





## 40 - MCF Non Union

1/1/1991	Member Contribution Rate 0.00%
10/30/1970	Covered by Act 88
6/1/1966	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 60 - CMH Non Union

10/1/2018	Service Credit Purchase Estimates - No
12/1/2016	Service Credit Purchase Estimates - Yes
5/1/2001	Benefit B-3 (80% max)
11/1/1998	Benefit FAC-5 (5 Year Final Average Compensation)
11/1/1998	10 Year Vesting
11/1/1998	Benefit B-2
11/1/1998	Member Contribution Rate 0.00%
4/6/1978	Exclude Temporary Employees
10/30/1970	Covered by Act 88
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

# Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

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

## Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	2.00%

## Miscellaneous and Technical Assumptions

Loads – None.

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

## Risk Commentary

Determination of the accrued liability, the employer contribution, and the funded ratio requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability, the actuarially determined contribution and the funded ratio that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- **Investment Risk** – actual investment returns may differ from the expected returns;
- **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
- **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
- **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

## PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>12/31/2020</u>	<u>12/31/2019</u>	<u>12/31/2018</u>
1. Ratio of the market value of assets to total payroll	3.9	3.5	3.3
2. Ratio of actuarial accrued liability to payroll	4.7	4.3	4.3
3. Ratio of actives to retirees and beneficiaries	1.6	1.8	1.8
4. Ratio of market value of assets to benefit payments	18.5	17.8	16.8
5. Ratio of net cash flow to market value of assets (boy)	-1.1%	-0.1%	-1.2%

### 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	685
12	Indicate number of inactive members (excluding pending refunds)	155
13	Indicate number of retirees and beneficiaries	431
<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	\$119,627,269
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions <sup>5</sup>	\$155,841,011
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending December 31, 2021	\$6,102,996

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%.