



# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report  
December 31, 2019 - Fraser, City of (5003)





Spring, 2020

Fraser, City of

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

This report presents the results of the Annual Actuarial Valuation, prepared for Fraser, City of (5003) as of December 31, 2019. 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, and the Michigan Constitution and governing statutes. Fraser, City of is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees.

The purposes of this valuation are to:

- Measure funding progress as of December 31, 2019,
- Establish contribution requirements for the fiscal year beginning July 1, 2021,
- 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, 2019. 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. A study was completed in 2015, as prepared by the prior actuary, and is the basis of the demographic assumptions and methods currently in place. At the February 28, 2019 board meeting, the MERS Retirement Board adopted new economic assumptions effective with the December 31, 2019 annual actuarial valuation, which will impact contributions beginning in 2021. **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.** An illustration of the potential impact is found in this report.

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-2019AnnualActuarialValuation-Appendix.pdf>

**The actuarial assumptions used for this valuation are reasonable for purposes of the measurement.**

**This report does not reflect the recent and still developing 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 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 Fraser, City of as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

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.

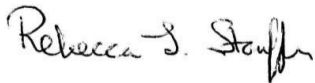
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible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

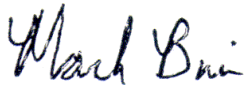
Sincerely,



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.

	12/31/2019	12/31/2018
Funded Ratio*	53%	52%

\* 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. Changes to the actuarial assumptions and methods based on the 2015 Experience Study are fully phased-in with this valuation.

Effective this valuation, the MERS Retirement Board has adopted a reduction in the investment rate of return assumption from 7.75% to 7.35% and a reduction in the rate of wage inflation from 3.75% to 3.00%. Changes to these assumptions are effective for contributions beginning in 2021 and may be phased-in. This valuation reflects the first year of phase-in.

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. Please note that this approach is different than in years past.

	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
	12/31/2019	12/31/2019	12/31/2018	12/31/2018	12/31/2019	12/31/2019	12/31/2018	12/31/2018
Valuation Date:	July 1, 2021	July 1, 2021	July 1, 2020	July 1, 2020	July 1, 2021	July 1, 2021	July 1, 2020	July 1, 2020
Fiscal Year Beginning:								
<b>Division</b>								
02 - Plc Dfrd&Rtd	-	-	-	-	\$ 0	\$ 0	\$ 0	\$ 0
10 - Supervisor/Management	981.79%	993.37%	653.56%	665.62%	64,089	64,845	41,014	41,771
11 - Clerical/Court	-	-	-	-	3,663	4,089	4,499	4,621
12 - Clerical/Court aft 7/1/16	3.15%	3.43%	3.72%	3.72%	240	261	303	303
20 - POLC	90.71%	96.09%	102.57%	103.96%	91,178	96,581	96,023	97,326
21 - POAM	-	-	-	-	51,155	55,274	57,940	58,890
22 - Dispatch	-	-	-	-	0	0	0	0
23 - DPW	-	-	-	-	20,627	22,388	18,316	18,721
24 - DPW hired aft 7/1/2016	2.61%	2.64%	4.42%	4.42%	700	709	1,042	1,042
25 - POAM hired after 7/1/2016	5.79%	5.66%	6.19%	6.19%	4,757	4,652	2,457	2,457
<b>Municipality Total</b>					<b>\$ 236,409</b>	<b>\$ 248,799</b>	<b>\$ 221,594</b>	<b>\$ 225,131</b>

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2019	12/31/2018
<b>Division</b>		
02 - Plc Dfrd&Rtd	3% < ; 5% >	3% < ; 5% >
10 - Supervisor/Management	7.00%	7.00%
11 - Clerical/Court	7.00%	7.00%
12 - Clerical/Court aft 7/1/16	7.00%	7.00%
20 - POLC	7.00%	7.00%
21 - POAM	7.00%	7.00%
22 - Dispatch	7.00%	7.00%
23 - DPW	7.00%	7.00%
24 - DPW hired aft 7/1/2016	7.00%	7.00%
25 - POAM hired after 7/1/2016	7.00%	7.00%

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 2021 for the entire employer would be \$351,182, instead of \$248,799.

### **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)
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions.

### **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 2019**

At the February 28, 2019 board meeting, the MERS Retirement Board adjusted key economic assumptions. These assumptions, in particular the investment return assumption, have a significant effect on a plan's required contribution and funding level. Historically low interest rates, along with high equity market valuations, have led to reductions in projected returns for most asset classes. This has resulted in a Board adopted reduction in the investment rate of return assumption from 7.75% to 7.35%, effective with the December 31, 2019 valuation, first impacting 2021 contributions. The Board also changed the assumed rate of wage inflation from 3.75% to 3.00%, with the same effective date.

### **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 will take effect with the Fiscal year 2021 contribution rates, the experience study recommends updated demographic assumptions, including adjustments to the following actuarial assumptions: mortality, retirement, disability, and termination rates. A complete description of the proposed assumptions may be found in the Appendix to the valuation. Changes to the demographic assumptions resulting from the experience study have been approved by the MERS Retirement Board and are to be effective beginning with the December 31, 2020 actuarial valuation first impacting 2022 contributions. This report includes a “What If” scenario of the approved 2020 assumption changes in an effort to show employers the anticipated impact on contribution rates.

## 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 2019 was 4.77%, while the actual market rate of return was 13.41%**. 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, 2019, the actuarial value of assets is 101% of market value due to asset smoothing. This means that meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 7.35% investment return assumption, or contribution requirements will continue to increase.

If the December 31, 2019 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 52% (instead of 53%); and
- Your total employer contribution requirement for the fiscal year starting July 1, 2021 would be \$3,024,108 (instead of \$2,985,588).

## 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 and the demographic assumptions. Lower

investment returns would result in higher required employer contributions, and vice-versa. Alternate demographic assumptions may result in higher or lower employer contributions depending on the demographic characteristics of the plan participants.

The relative impact of the economic and demographic 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, 2019 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.

**In addition to economic assumption changes effective with Fiscal Year 2021 contributions, the Retirement Board has also adopted a change to certain demographic and other assumptions effective for the December 31, 2020 valuation which will impact the Fiscal Year 2022 contributions. Please see the section labeled "Assumption Change in 2020" for more information. The scenario shown using these assumptions as of December 31, 2019 is illustrative only. The actual impact of this change when reflected in the 2020 Annual Actuarial Valuation report will be different.**

12/31/2019 Valuation Results	Assumed Future Annual Smoothed Rate of Investment Return		
	Lower Future Annual Returns <sup>3</sup>	2020 Adopted Demographic Assumptions	Valuation Assumptions
<b>Investment Return Assumption</b>	<b>5.35%</b>	<b>7.35%</b>	<b>7.35%</b>
<b>Wage Increase Assumption</b>	<b>3.00%</b>	<b>3.00%</b>	<b>3.00%</b>
Accrued Liability	\$ 79,441,444	\$ 65,250,555	\$ 63,814,633
Valuation Assets <sup>1</sup>	\$ 33,871,005	\$ 33,871,005	\$ 33,871,005
Unfunded Accrued Liability	\$ 45,570,439	\$ 31,379,550	\$ 29,943,628
<b>Funded Ratio</b>	43%	52%	53%
Monthly Normal Cost	\$ 80,585	\$ 29,471	\$ 38,576
Monthly Amortization Payment	\$ 268,907	\$ 215,494	\$ 207,195
<b>Total Employer Contribution<sup>2</sup></b>	<b>\$ 352,132</b>	<b>\$ 247,968</b>	<b>\$ 248,799</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.

<sup>3</sup> Based on current demographic assumptions.

## 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 and demographic assumption scenarios. All three projections take into account the past investment losses that will continue to affect the actuarial rate of return in the short term.



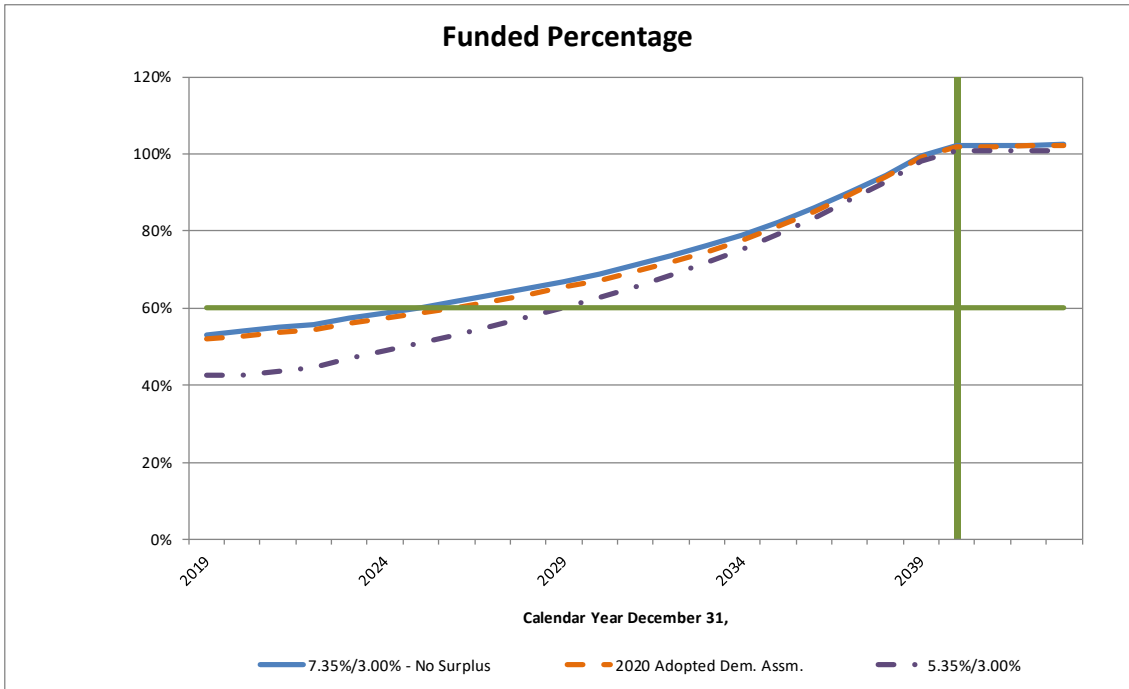
The 7.35%/3.00% scenario provides an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.35% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. The 2020 adopted demographic assumption and 5.35%/3.00% projection scenarios provide an indication of the potential required employer contribution if these assumptions were met over the long-term.

Please note that one or more of your divisions trigger the 3 times benefit payout minimum contribution requirement during the projection period (see table following the projections and the graphs). This contribution requirement was designed so that a plan does not run out of money. This means that if assets in the plan are not enough to pay 3 years of benefit payouts, a minimum contribution is required to raise the level of the assets to be equal to at least 3 years of benefit payments. For a full description of this contribution requirement see the Appendix on the MERS website.

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	Actuarial Accrued Liability	Valuation Assets <sup>2</sup>	Funded Percentage	Computed Annual Employer Contribution
<b>7.35%<sup>1</sup>/3.00% - Current Demographic Assumptions</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2019	2021	\$ 63,814,633	\$ 33,871,005	53%	\$ 2,985,588
2020	2022	\$ 65,000,000	\$ 35,100,000	54%	\$ 3,000,000
2021	2023	\$ 66,200,000	\$ 36,300,000	55%	\$ 3,050,000
2022	2024	\$ 67,200,000	\$ 37,400,000	56%	\$ 3,140,000
2023	2025	\$ 68,300,000	\$ 39,100,000	57%	\$ 3,200,000
2024	2026	\$ 69,300,000	\$ 40,700,000	59%	\$ 3,270,000
<b>7.35%<sup>1</sup>/3.00% - Adopted 2020 Demographic Assumptions</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2019	2021	\$ 65,250,555	\$ 33,871,005	52%	\$ 2,975,616
2020	2022	\$ 66,400,000	\$ 35,100,000	53%	\$ 2,980,000
2021	2023	\$ 67,500,000	\$ 36,200,000	54%	\$ 3,020,000
2022	2024	\$ 68,500,000	\$ 37,200,000	54%	\$ 3,120,000
2023	2025	\$ 69,500,000	\$ 38,900,000	56%	\$ 3,180,000
2024	2026	\$ 70,400,000	\$ 40,300,000	57%	\$ 3,260,000
<b>5.35%<sup>1</sup>/3.00% - Current Demographic Assumptions</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2019	2021	\$ 79,441,444	\$ 33,871,005	43%	\$ 4,225,584
2020	2022	\$ 80,700,000	\$ 34,500,000	43%	\$ 4,280,000
2021	2023	\$ 82,000,000	\$ 35,600,000	43%	\$ 4,370,000
2022	2024	\$ 83,100,000	\$ 37,200,000	45%	\$ 4,490,000
2023	2025	\$ 84,300,000	\$ 39,600,000	47%	\$ 4,590,000
2024	2026	\$ 85,300,000	\$ 41,700,000	49%	\$ 4,700,000

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

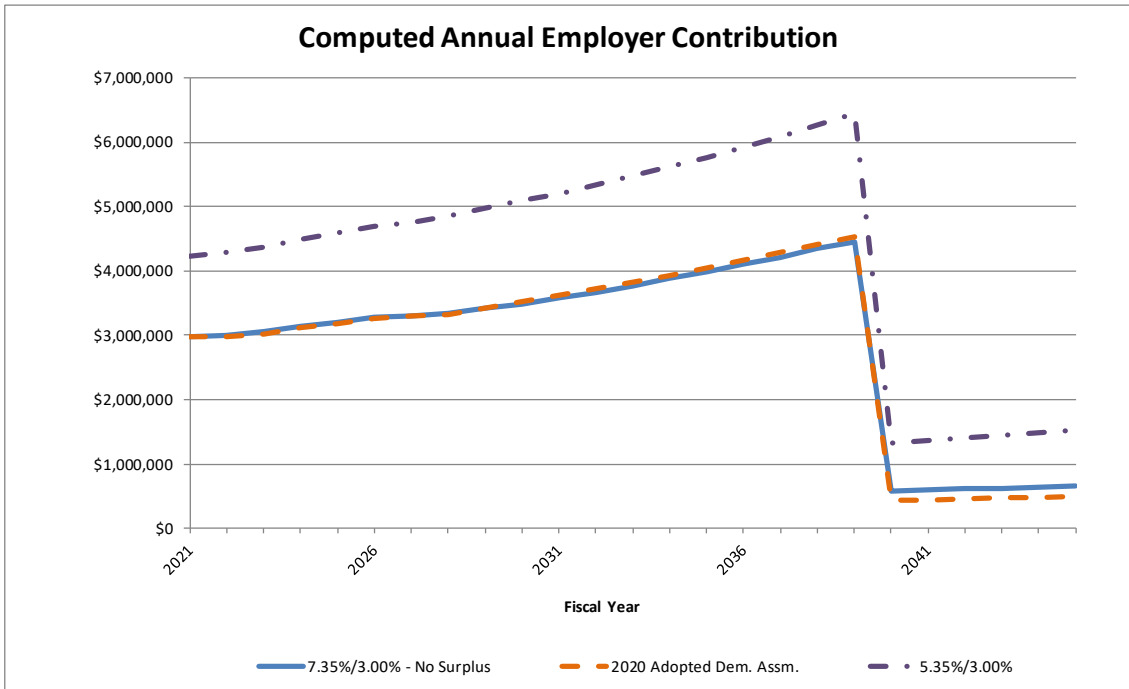
<sup>2</sup> Valuation Assets do not include assets from Surplus divisions, if any.



**Notes:**

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

The green indicator lines have been added at 60% funded and 21 years following the valuation date for PA 202 purposes.



**Notes:**

All projected contributions are shown with no phase-in.

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	7.35%/3.00% No Phase-In	2020 Dem. Assm. No Phase-In	5.35%/3.00% No Phase-In
2019	2021	10	10	10
2020	2022	10	10	10
2021	2023	10	10	10
2022	2024	10	10	10
2023	2025	10	10	10
2024	2026	10	10	10

This table shows in any given year which division(s) are impacted by the 3 times benefit payout minimum required contribution. If “No” appears in the table, it means none of the divisions are impacted.

## Table 1: Employer Contribution Details For the Fiscal Year Beginning July 1, 2021

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	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribut. No Phase-In				
<b>Percentage of Payroll</b>									
02 - Plc Dfrd&Rtd	0.00%	3% < ; 5% >	-	-	-	-	-	-	-
10 - Supervisor/Management	17.75%	7.00%	10.75%	982.62%	993.37%	981.79%	-	-	0.94%
11 - Clerical/Court	16.75%	7.00%	-	-	-	-	11.49%	10.31%	-
12 - Clerical/Court aft 7/1/16	10.43%	7.00%	3.43%	0.00%	3.43%	3.15%	11.49%	10.31%	0.92%
20 - POLC	19.10%	7.00%	12.10%	83.99%	96.09%	90.71%	-	-	0.85%
21 - POAM	20.29%	7.00%	-	-	-	-	33.92%	31.65%	-
22 - Dispatch	0.00%	7.00%	-	-	-	-	-	-	-
23 - DPW	16.95%	7.00%	-	-	-	-	33.67%	31.09%	-
24 - DPW hired aft 7/1/2016	10.45%	7.00%	3.45%	-0.81%	2.64%	2.61%	33.67%	31.09%	0.95%
25 - POAM hired after 7/1/2016	12.92%	7.00%	5.92%	-0.26%	5.66%	5.79%	33.92%	31.65%	0.93%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
02 - Plc Dfrd&Rtd			\$ 0	\$ (3,028)	\$ 0	\$ 0			
10 - Supervisor/Management			702	64,143	64,845	64,089			
11 - Clerical/Court			2,948	1,141	4,089	3,663			
12 - Clerical/Court aft 7/1/16			261	0	261	240			
20 - POLC			12,162	84,419	96,581	91,178			
21 - POAM			12,555	42,719	55,274	51,155			
22 - Dispatch			0	0	0	0			
23 - DPW			4,158	18,230	22,388	20,627			
24 - DPW hired aft 7/1/2016			925	(216)	709	700			
25 - POAM hired after 7/1/2016			4,865	(213)	4,652	4,757			
<b>Total Municipality</b>			<b>\$ 38,576</b>	<b>\$ 207,195</b>	<b>\$ 248,799</b>	<b>\$ 236,409</b>			
<b>Estimated Annual Contribution<sup>3</sup></b>			<b>\$ 462,912</b>	<b>\$ 2,486,340</b>	<b>\$ 2,985,588</b>	<b>\$ 2,836,908</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).

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

## Table 2: Benefit Provisions

### 02 - Plc Dfrd&Rtd: Closed to new hires

	2019 Valuation	2018 Valuation
<b>Benefit Multiplier:</b>	Svc x [1.00% x FAC<\$4,200, plus 1.50% x FAC>\$4,200] (no max)	Svc x [1.00% x FAC<\$4,200, plus 1.50% x FAC>\$4,200] (no 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 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	3.00% under \$4,200; 5.00% over \$4,200	3.00% under \$4,200; 5.00% over \$4,200
<b>Act 88:</b>	No	No

### 10 - Supervisor/Management: Open Division

	2019 Valuation	2018 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>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	50/25 55/10	50/25 55/10
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)

### 11 - Clerical/Court: Closed to new hires, linked to Division 12

	2019 Valuation	2018 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>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	50/25 55/15	50/25 55/15
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)



**12 - Clerical/Court aft 7/1/16: Open Division, linked to Division 11**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/15	55/15
<b>Early Retirement (Reduced):</b>	50/25	50/25
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)

**20 - POLC: Open Division**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	55	55
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)

**21 - POAM: Closed to new hires, linked to Division 25**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (75% max)	2.50% Multiplier (75% max)
<b>Normal Retirement Age:</b>	55	55
<b>Vesting:</b>	10 years	10 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	5 years	5 years
<b>COLA for Future Retirees:</b>	2.00% (Non-Compound)	2.00% (Non-Compound)
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 7/1/2014)	Yes (Adopted 7/1/2014)

**22 - Dispatch: Closed to new hires**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (no max)	2.50% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	50/25 55/10	50/25 55/10
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)



**23 - DPW: Closed to new hires, linked to Division 24**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	2.75% Multiplier (80% max)	2.75% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	50/25 55/10	50/25 55/10
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)

**24 - DPW hired aft 7/1/2016: Open Division, linked to Division 23**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/10	55/10
<b>Early Retirement (Reduced):</b>	50/25	50/25
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)

**25 - POAM hired after 7/1/2016: Open Division, linked to Division 21**

	<b>2019 Valuation</b>	<b>2018 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)	1.50% Multiplier for Svc < 10 yrs, 2.00% Multiplier for Svc > 10 yrs (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/10	55/10
<b>Early Retirement (Reduced):</b>	50/25	50/25
<b>Final Average Compensation:</b>	5 years	5 years
<b>COLA for Future Retirees:</b>	2.00% (Non-Compound)	2.00% (Non-Compound)
<b>Employee Contributions:</b>	7.00%	7.00%
<b>Act 88:</b>	Yes (Adopted 4/13/1967)	Yes (Adopted 4/13/1967)



### Table 3: Participant Summary

Division	2019 Valuation		2018 Valuation		2019 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 - Plc Dfird&amp;Rtd</b>							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	3	9,502	3	9,502	80.9		
Pending Refunds	0		0				
<b>10 - Supervisor/Management</b>							
Active Employees	1	\$ 72,745	1	\$ 68,673	56.0	12.7	12.7
Vested Former Employees	6	68,224	6	68,224	51.5	0.0	11.4
Retirees and Beneficiaries	32	872,301	32	872,303	69.0		
Pending Refunds	1		1				
<b>11 - Clerical/Court</b>							
Active Employees	7	\$ 342,964	9	\$ 427,218	42.5	13.7	13.7
Vested Former Employees	4	33,141	5	41,509	50.9	2.4	8.7
Retirees and Beneficiaries	11	192,488	11	186,049	74.6		
Pending Refunds	1		0				
<b>12 - Clerical/Court aft 7/1/16</b>							
Active Employees	2	\$ 78,841	2	\$ 72,799	45.0	1.6	1.6
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	0		0				
<b>20 - POLC</b>							
Active Employees	9	\$ 1,120,145	8	\$ 1,024,502	46.0	21.2	21.2
Vested Former Employees	1	51,725	1	51,725	43.8	18.8	18.8
Retirees and Beneficiaries	31	1,733,460	33	1,832,061	67.1		
Pending Refunds	0		0				
<b>21 - POAM</b>							
Active Employees	14	\$ 1,284,967	16	\$ 1,558,230	46.5	18.5	18.7
Vested Former Employees	4	71,695	4	71,695	39.8	5.1	10.9
Retirees and Beneficiaries	19	743,514	18	683,725	66.6		
Pending Refunds	5		6				
<b>22 - Dispatch</b>							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	6	104,542	4	93,773	46.6	10.2	12.8
Retirees and Beneficiaries	1	40,041	1	40,041	62.2		
Pending Refunds	1		3				

**Table 3 (continued)**

Division	2019 Valuation		2018 Valuation		2019 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>23 - DPW</b>							
Active Employees	7	\$ 523,859	7	\$ 482,650	46.1	18.6	19.2
Vested Former Employees	6	91,941	6	91,941	52.8	3.1	13.1
Retirees and Beneficiaries	12	402,210	12	400,530	66.8		
Pending Refunds	0		0				
<b>24 - DPW hired aft 7/1/2016</b>							
Active Employees	5	\$ 240,689	5	\$ 233,651	30.3	1.1	4.6
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	1		0				
<b>25 - POAM hired after 7/1/2016</b>							
Active Employees	11	\$ 683,615	6	\$ 265,123	24.9	1.2	1.2
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
Pending Refunds	1		0				
<b>Total Municipality</b>							
Active Employees	56	\$ 4,347,825	54	\$ 4,132,846	40.3	12.7	13.1
Vested Former Employees	27	421,267	26	418,867	48.6	4.8	11.9
Retirees and Beneficiaries	109	3,993,516	110	4,024,211	68.6		
Pending Refunds	<u>10</u>		<u>10</u>				
<b>Total Participants</b>	<b>202</b>		<b>200</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	2019 Valuation		2018 Valuation	
	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>
02 - Plc Dfrd&Rtd	\$ 311,594	\$ 0	\$ 283,456	\$ 0
10 - Supervisor/Management	2,100,521	117,728	2,387,940	110,890
11 - Clerical/Court	2,279,277	291,733	2,063,551	303,364
12 - Clerical/Court aft 7/1/16	6,675	8,539	(2,973)	2,973
20 - POLC	11,025,703	885,212	9,202,841	657,140
21 - POAM	8,725,333	1,168,660	7,211,118	1,329,026
22 - Dispatch	1,257,918	210,846	1,075,342	207,546
23 - DPW	4,415,747	438,513	3,978,361	420,628
24 - DPW hired aft 7/1/2016	46,347	24,999	19,952	553
25 - POAM hired after 7/1/2016	59,698	55,378	(1,371)	5,773
<b>Municipality Total<sup>3</sup></b>	<b>\$ 30,228,814</b>	<b>\$ 3,201,609</b>	<b>\$ 26,218,218</b>	<b>\$ 3,037,892</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$33,430,423</b>		<b>\$29,256,110</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, 2019 valuation assets (actuarial value of assets) are equal to 1.013179 times the reported market value of assets (compared to 1.095342 as of December 31, 2018). 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						
2009	\$ 0		\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
2010	0		0	0	0	0	0	0
2011	0	\$ 0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0
2014	27,105,032	0	0	1,941,362	(538,524)	0	0	28,798,705
2015	3,402,661	4,351	690,780	1,536,478	(3,344,392)	0	(471,605)	30,616,978
2016	2,039,478	0	349,173	1,487,788	(3,535,697)	(609)	0	30,957,111
2017	2,082,726	70,284	359,217	1,831,753	(3,635,258)	(16,490)	149,480	31,798,823
2018	1,282,645	1,257,912	354,863	1,154,962	(3,823,376)	(28,967)	48,585	32,045,447
2019	2,303,888	1,572,996	313,917	1,613,504	(3,953,448)	(43,358)	18,059	33,871,005

**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, 2019**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
02 - Plc Dfrd&Rtd	\$ 0	\$ 0	\$ 59,779	\$ 0	\$ 59,779	\$ 315,701	528.1%	\$ (255,922)
10 - Supervisor/Management	211,360	531,476	8,949,620	11,860	9,704,316	2,247,484	23.2%	7,456,832
11 - Clerical/Court	997,504	218,133	1,553,582	13,388	2,782,607	2,604,894	93.6%	177,713
12 - Clerical/Court aft 7/1/16	12,918	0	0	0	12,918	15,414	119.3%	(2,496)
20 - POLC	6,759,581	277,363	18,252,208	0	25,289,152	12,067,890	47.7%	13,221,262
21 - POAM	7,427,673	483,765	8,750,854	26,245	16,688,537	10,024,386	60.1%	6,664,151
22 - Dispatch	0	973,920	426,228	16,651	1,416,799	1,488,121	105.0%	(71,322)
23 - DPW	2,466,863	698,936	4,554,899	0	7,720,698	4,918,235	63.7%	2,802,463
24 - DPW hired aft 7/1/2016	43,807	0	0	4,344	48,151	72,287	150.1%	(24,136)
25 - POAM hired after 7/1/2016	90,836	0	0	840	91,676	116,593	127.2%	(24,917)
<b>Total</b>	<b>\$ 18,010,542</b>	<b>\$ 3,183,593</b>	<b>\$ 42,547,170</b>	<b>\$ 73,328</b>	<b>\$ 63,814,633</b>	<b>\$ 33,871,005</b>	<b>53.1%</b>	<b>\$ 29,943,628</b>

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

**Table 6 (continued)**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
Linked Divisions 12, 11	\$ 1,010,422	\$ 218,133	\$ 1,553,582	\$ 13,388	\$ 2,795,525	\$ 2,620,308	93.7%	\$ 175,217
Linked Divisions 24, 23	2,510,670	698,936	4,554,899	4,344	7,768,849	4,990,522	64.2%	2,778,327
Linked Divisions 25, 21	7,518,509	483,765	8,750,854	27,085	16,780,213	10,140,979	60.4%	6,639,234

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



## Table 7: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2005	\$ 0	\$ 0	0%	\$ 0
2006	0	0	0%	0
2007	0	0	0%	0
2008	0	0	0%	0
2009	0	0	0%	0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	49,905,166	28,798,705	58%	21,106,461
2015	54,774,413	30,616,978	56%	24,157,435
2016	59,257,679	30,957,111	52%	28,300,568
2017	59,774,487	31,798,823	53%	27,975,664
2018	61,887,926	32,045,447	52%	29,842,479
2019	63,814,633	33,871,005	53%	29,943,628

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012, 2015 and 2019 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 - Plc Dfrd&Rtd

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	87,969	293,802	334%	(205,833)
2015	90,070	295,052	328%	(204,982)
2016	65,541	300,292	458%	(234,751)
2017	63,084	308,810	490%	(245,726)
2018	61,201	310,481	507%	(249,280)
2019	59,779	315,701	528%	(255,922)

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	3% < ; 5% >
2017	0	0	\$ 0	3% < ; 5% >
2018	0	0	\$ 0	3% < ; 5% >
2019	0	0	\$ 0	3% < ; 5% >

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 - Supervisor/Management

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	9,094,283	3,176,294	35%	5,917,989
2015	9,921,827	3,708,065	37%	6,213,762
2016	9,876,284	3,495,026	35%	6,381,258
2017	9,542,074	3,234,088	34%	6,307,986
2018	9,445,607	2,737,074	29%	6,708,533
2019	9,704,316	2,247,484	23%	7,456,832

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	2	134,772	268.51%	5.00%
2015	3	210,194	183.31%	7.00%
2016	3	221,779	188.80%	7.00%
2017	1	65,594	634.50%	7.00%
2018	1	68,673	665.62%	7.00%
2019	1	72,745	993.37%	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 - Clerical/Court

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	2,272,913	2,548,114	112%	(275,201)
2015	2,512,438	2,426,641	97%	85,797
2016	2,559,179	2,394,696	94%	164,483
2017	2,606,729	2,407,648	92%	199,081
2018	2,758,807	2,592,582	94%	166,225
2019	2,782,607	2,604,894	94%	177,713

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	10	442,581	2.78%	7.00%
2015	9	384,957	11.77%	7.00%
2016	9	389,238	12.62%	7.00%
2017	10	427,908	12.64%	7.00%
2018	9	427,218	\$ 4,621	7.00%
2019	7	342,964	\$ 4,089	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 - Clerical/Court aft 7/1/16

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	3,841	0	0%	3,841
2019	12,918	15,414	119%	(2,496)

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 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		
2009	0	\$ 0	\$0.00	0.00%
2010	0	0	\$0.00	0.00%
2011	0	0	\$0.00	0.00%
2012	0	0	\$0.00	0.00%
2013	0	0	\$0.00	0.00%
2014	0	0	\$0.00	0.00%
2015	0	0	\$0.00	0.00%
2016	0	0	\$0.00	0.00%
2017	0	0	\$0.00	0.00%
2018	2	72,799	3.72%	7.00%
2019	2	78,841	3.43%	7.00%

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

<sup>2</sup> 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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 8-20: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	19,386,868	10,936,852	56%	8,450,016
2015	20,997,988	11,087,165	53%	9,910,823
2016	23,262,701	10,869,094	47%	12,393,607
2017	23,808,308	11,021,429	46%	12,786,879
2018	24,787,427	10,800,051	44%	13,987,376
2019	25,289,152	12,067,890	48%	13,221,262

Notes: Actuarial assumptions were revised for the 2009, 2010, 2011, 2012, 2015 and 2019 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	11	1,179,932	54.67%	7.00%
2015	11	1,109,721	68.31%	7.00%
2016	11	1,134,800	82.61%	7.00%
2017	10	1,093,559	88.50%	7.00%
2018	8	1,024,502	103.96%	7.00%
2019	9	1,120,145	96.09%	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 21 - POAM

**Table 8-21: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	12,412,485	6,783,259	55%	5,629,226
2015	13,572,595	7,896,315	58%	5,676,280
2016	15,626,114	8,524,511	55%	7,101,603
2017	15,308,700	9,088,809	59%	6,219,891
2018	16,257,855	9,354,379	58%	6,903,476
2019	16,688,537	10,024,386	60%	6,664,151

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

**Table 9-21: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	29	2,375,577	26.85%	7.00%
2015	27	2,236,591	28.70%	7.00%
2016	29	2,431,228	32.81%	7.00%
2017	26	2,185,461	31.14%	7.00%
2018	16	1,558,230	\$ 58,890	7.00%
2019	14	1,284,967	\$ 55,274	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 22 - Dispatch

**Table 8-22: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	981,973	940,671	96%	41,302
2015	1,152,292	1,007,392	87%	144,900
2016	1,246,826	1,074,155	86%	172,671
2017	1,331,261	1,153,107	87%	178,154
2018	1,300,864	1,405,201	108%	(104,337)
2019	1,416,799	1,488,121	105%	(71,322)

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

**Table 9-22: 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	5	274,336	10.23%	7.00%
2015	5	267,956	12.82%	7.00%
2016	5	282,541	13.25%	7.00%
2017	5	281,758	13.39%	7.00%
2018	0	0	\$ 0	7.00%
2019	0	0	\$ 0	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 8-23: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	5,668,675	4,119,713	73%	1,548,962
2015	6,527,203	4,196,348	64%	2,330,855
2016	6,621,034	4,299,337	65%	2,321,697
2017	7,114,331	4,584,932	64%	2,529,399
2018	7,223,945	4,818,397	67%	2,405,548
2019	7,720,698	4,918,235	64%	2,802,463

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

**Table 9-23: 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		
2009	0	\$ 0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	9	612,438	24.85%	7.00%
2015	9	614,640	34.00%	7.00%
2016	9	593,604	34.78%	7.00%
2017	12	838,250	29.71%	7.00%
2018	7	482,650	\$ 18,721	7.00%
2019	7	523,859	\$ 22,388	7.00%

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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 24 - DPW hired aft 7/1/2016

**Table 8-24: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	38,870	22,460	58%	16,410
2019	48,151	72,287	150%	(24,136)

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

**Table 9-24: 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		
2009	0	\$ 0	\$0.00	0.00%
2010	0	0	\$0.00	0.00%
2011	0	0	\$0.00	0.00%
2012	0	0	\$0.00	0.00%
2013	0	0	\$0.00	0.00%
2014	0	0	\$0.00	0.00%
2015	0	0	\$0.00	0.00%
2016	0	0	\$0.00	0.00%
2017	0	0	\$0.00	0.00%
2018	5	233,651	4.42%	7.00%
2019	5	240,689	2.64%	7.00%

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

<sup>2</sup> 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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 25 - POAM hired after 7/1/2016

**Table 8-25: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2009	\$ 0	\$ 0	0%	\$ 0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	0	0	0%	0
2014	0	0	0%	0
2015	0	0	0%	0
2016	0	0	0%	0
2017	0	0	0%	0
2018	9,509	4,822	51%	4,687
2019	91,676	116,593	127%	(24,917)

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

**Table 9-25: 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		
2009	0	\$ 0	\$0.00	0.00%
2010	0	0	\$0.00	0.00%
2011	0	0	\$0.00	0.00%
2012	0	0	\$0.00	0.00%
2013	0	0	\$0.00	0.00%
2014	0	0	\$0.00	0.00%
2015	0	0	\$0.00	0.00%
2016	0	0	\$0.00	0.00%
2017	0	0	\$0.00	0.00%
2018	6	265,123	6.19%	7.00%
2019	11	683,615	5.66%	7.00%

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

<sup>2</sup> 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 12/31/2019 valuations do **not** reflect the phase-in of the increased 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 - Plc Dfrd&Rtd

**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 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ (204,982)	10	\$ (187,255)	10	\$ (23,208)
(Gain)/Loss	12/31/2016	(13,881)	10	(12,818)	7	(2,136)
(Gain)/Loss	12/31/2017	(7,082)	10	(7,063)	8	(1,056)
(Gain)/Loss	12/31/2018	(27,759)	10	(29,505)	9	(3,984)
(Gain)/Loss	12/31/2019	(45,691)	10	(50,820)	10	(6,300)
Assumption	12/31/2019	1,090	10	2,812	10	348
<b>Total</b>				<b>\$ (284,649)</b>		<b>\$ (36,336)</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 - Supervisor/Management

**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 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 6,213,762	23	\$ 6,180,622	19	\$ 476,628
(Gain)/Loss	12/31/2016	267,824	22	303,571	19	23,412
(Gain)/Loss	12/31/2017	(48,448)	21	(54,558)	19	(4,212)
(Gain)/Loss	12/31/2018	341,436	20	382,702	19	29,508
(Gain)/Loss	12/31/2019	380,856	19	423,608	19	221,136
Assumption	12/31/2019	309,083	19	301,397	19	23,244
<b>Total</b>				<b>\$ 7,537,342</b>		<b>\$ 769,716</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 - Clerical/Court

**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 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 85,797	23	\$ 142,801	19	\$ 11,016
(Gain)/Loss	12/31/2016	43,531	22	49,335	19	3,804
(Gain)/Loss	12/31/2017	12,025	21	13,533	19	1,044
(Gain)/Loss	12/31/2018	(36,952)	20	(41,418)	19	(3,192)
(Gain)/Loss	12/31/2019	(67,629)	19	(75,220)	19	(5,796)
Assumption	12/31/2019	80,016	19	88,449	19	6,816
<b>Total</b>				<b>\$ 177,480</b>		<b>\$ 13,692</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 - Clerical/Court aft 7/1/16

**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 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ (2,854)	15	\$ (3,174)	15	\$ (288)
<b>Total</b>				<b>\$ (3,174)</b>		<b>\$ (288)</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 9,910,823	23	\$ 10,534,672	19	\$ 812,400
(Gain)/Loss	12/31/2016	2,226,763	22	2,523,972	19	194,640
(Gain)/Loss	12/31/2017	46,488	21	52,336	19	4,032
(Gain)/Loss	12/31/2018	1,009,330	20	1,131,315	19	87,240
(Gain)/Loss	12/31/2019	(1,756,296)	19	(1,953,443)	19	(150,648)
Assumption	12/31/2019	827,441	19	847,523	19	65,364
<b>Total</b>				<b>\$ 13,136,375</b>		<b>\$ 1,013,028</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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



## Division 21 - POAM

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 5,676,280	23	\$ 5,963,433	19	\$ 459,888
(Gain)/Loss	12/31/2016	820,738	22	930,292	19	71,736
Amendment	12/31/2016	505,732	22	573,230	19	44,208
(Gain)/Loss	12/31/2017	(670,181)	21	(754,580)	19	(58,188)
Amendment	12/31/2017	(393,746)	21	(443,338)	19	(34,188)
(Gain)/Loss	12/31/2018	657,611	20	737,093	19	56,844
(Gain)/Loss	12/31/2019	(954,117)	19	(1,061,218)	19	(81,840)
Assumption	12/31/2019	663,175	19	702,371	19	54,168
<b>Total</b>				<b>\$ 6,647,283</b>		<b>\$ 512,628</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 22 - Dispatch

**Table 10-22: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2018	\$ (122,196)	10	\$ (129,909)	9	\$ (17,544)
(Gain)/Loss	12/31/2019	(15,957)	10	(17,748)	10	(2,196)
Assumption	12/31/2019	54,452	10	61,380	10	7,608
<b>Total</b>				<b>\$ (86,277)</b>		<b>\$ (12,132)</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 10-23: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 2,330,855	23	\$ 2,509,537	19	\$ 193,524
(Gain)/Loss	12/31/2016	(87,210)	22	(98,852)	19	(7,620)
(Gain)/Loss	12/31/2017	159,592	21	179,693	19	13,860
(Gain)/Loss	12/31/2018	(152,973)	20	(171,461)	19	(13,224)
(Gain)/Loss	12/31/2019	100,391	19	111,660	19	8,616
Assumption	12/31/2019	288,572	19	306,122	19	23,604
<b>Total</b>				<b>\$ 2,836,699</b>		<b>\$ 218,760</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 24 - DPW hired aft 7/1/2016

**Table 10-24: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ (25,656)	15	\$ (28,536)	15	\$ (2,592)
<b>Total</b>				<b>\$ (28,536)</b>		<b>\$ (2,592)</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 25 - POAM hired after 7/1/2016

**Table 10-25: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 7/1/2021		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2019	\$ (25,352)	15	\$ (28,198)	15	\$ (2,556)
<b>Total</b>				<b>\$ (28,198)</b>		<b>\$ (2,556)</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, 2019 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2019 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 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. Statement 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:	12/31/2019
Measurement Date of the Total Pension Liability (TPL):	12/31/2019
At 12/31/2019, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	109
Inactive employees entitled to but not yet receiving benefits (including refunds):	37
Active employees:	<u>56</u>
	202
Total Pension Liability as of 12/31/2018 measurement date:	\$ 60,362,900
Total Pension Liability as of 12/31/2019 measurement date:	\$ 62,222,901
Service Cost for the year ending on the 12/31/2019 measurement date:	\$ 711,380
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ 0
- Differences between expected and actual experience <sup>2</sup> :	\$ (1,682,139)
- Changes in assumptions <sup>2</sup> :	\$ 2,129,951
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)	\$ 4,347,825
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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 12/31/2019:	\$ 6,800,846	\$ -	\$ (5,743,438)

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 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 - Plc Dfrd&Rtd

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2014	Fiscal Month - July
7/1/1966	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1966	10 Year Vesting
7/1/1966	Benefit C (Old)
7/1/1966	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 10 - Supervisor/Management

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Day of work defined as 120 Hours a Month for All employees.
7/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	6 Year Vesting
7/1/2014	Benefit B-4 (80% max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 10 Years of Service)
7/1/2014	Participant Contribution Rate 7%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 11 - Clerical/Court

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Day of work defined as 128 Hours a Month for All employees.
7/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	6 Year Vesting
7/1/2014	Benefit B-4 (80% max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 15 Years of Service)
7/1/2014	Member Contribution Rate 7.00%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years



## 12 - Clerical/Court aft 7/1/16

7/1/2016	Day of work defined as 128 Hours a Month for All employees.
7/1/2016	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2016	Non Standard Compensation Definition
7/1/2016	Exclude Temporary Employees requiring less than 12 months
7/1/2016	6 Year Vesting
7/1/2016	Defined Benefit Normal Retirement Age - 60
7/1/2016	Service Credit Purchase Estimates - Yes
7/1/2016	1.5%<10 yrs 2%>10 yrs
7/1/2016	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
7/1/2016	Benefit F55 (With 15 Years of Service)
7/1/2016	Participant Contribution Rate 7%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88

## 20 - POLC

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Day of work defined as 120 Hours a Month for All employees.
7/1/2014	Benefit FAC-3 with External Add-on
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	10 Year Vesting
7/1/2014	Benefit B-4 (80% max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 10 Years of Service)
7/1/2014	Member Contribution Rate 7.00%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 21 - POAM

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Covered by Act 88
7/1/2014	Day of work defined as 120 Hours a Month for All employees.
7/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	10 Year Vesting
7/1/2014	Benefit B-4 (75% max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 10 Years of Service)
7/1/2014	Member Contribution Rate 7.00%
7/1/2014	E2 2% COLA for future retirees
7/1/2014	Fiscal Month - July
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years



## 22 - Dispatch

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Day of work defined as 128 Hours a Month for All employees.
7/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	6 Year Vesting
7/1/2014	2.5% Multiplier (no max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 10 Years of Service)
7/1/2014	Member Contribution Rate 7.00%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 23 - DPW

12/1/2016	Service Credit Purchase Estimates - Yes
11/13/2014	Blanket Resolution (Generic Service)
7/1/2014	Day of work defined as 128 Hours a Month for All employees.
7/1/2014	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2014	Non Standard Compensation Definition
7/1/2014	Exclude Temporary Employees requiring less than 12 months
7/1/2014	6 Year Vesting
7/1/2014	2.75% Multiplier (80% max)
7/1/2014	Benefit F50 (With 25 Years of Service)
7/1/2014	Benefit F55 (With 10 Years of Service)
7/1/2014	Member Contribution Rate 7.00%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 24 - DPW hired aft 7/1/2016

7/1/2016	Day of work defined as 128 Hours a Month for Full Time employees.
7/1/2016	External Add on for FAC
7/1/2016	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2016	Non Standard Compensation Definition
7/1/2016	Exclude Temporary Employees requiring less than 12 months
7/1/2016	6 Year Vesting
7/1/2016	Defined Benefit Normal Retirement Age - 60
7/1/2016	Service Credit Purchase Estimates - Yes
7/1/2016	1.5%<10 yrs 2%>10 yrs
7/1/2016	Benefit F55 (With 10 Years of Service)
7/1/2016	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
7/1/2016	Participant Contribution Rate 7%
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88

## 25 - POAM hired after 7/1/2016

7/1/2016	Blanket Resolution (Generic Service)
7/1/2016	Day of work defined as 128 Hours a Month for Full Time employees.
7/1/2016	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2016	Non Standard Compensation Definition
7/1/2016	Exclude Temporary Employees requiring less than 12 months
7/1/2016	Sick Eligibility - 400 hrs max
7/1/2016	6 Year Vesting
7/1/2016	Defined Benefit Normal Retirement Age - 60
7/1/2016	Service Credit Purchase Estimates - Yes
7/1/2016	1.5%<10 yrs 2%>10 yrs
7/1/2016	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
7/1/2016	Benefit F55 (With 10 Years of Service)
7/1/2016	Participant Contribution Rate 7%
7/1/2016	E2 2% COLA for future retirees (7/1/2016)
7/1/2014	Fiscal Month - July
4/13/1967	Covered by Act 88

## Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

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

### Increase in Final Average Compensation

Division	FAC Increase Assumption
02 - Plc Dfrd&Rtd	0.00%
10 - Supervisor/Management	3.00%
11 - Clerical/Court	3.00%
12 - Clerical/Court aft 7/1/16	3.00%
20 - POLC	14.00%
21 - POAM	8.00%
22 - Dispatch	7.00%
23 - DPW	0.00%
24 - DPW hired aft 7/1/2016	0.00%
25 - POAM hired after 7/1/2016	8.00%

### Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	30%

## Miscellaneous and Technical Assumptions

Loads – None.

For conservatism, this valuation does not reflect any maximum benefit based on base wages for divisions 11, 12, 21, 23, 24, and 25.

## 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>12/31/2019</u>	<u>12/31/2018</u>
1. Ratio of the market value of assets to total payroll	7.7	7.1
2. Ratio of actuarial accrued liability to payroll	14.7	15.0
3. Ratio of actives to retirees and beneficiaries	0.5	0.5
4. Ratio of market value of assets to benefit payments	8.4	7.6
5. Ratio of net cash flow to market value of assets (boy)	0.7%	-2.9%

### **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 active 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 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, 2019</b>	
11	Indicate number of active members	56
12	Indicate number of inactive members (excluding pending refunds)	27
13	Indicate number of retirees and beneficiaries	109
<b>14</b>	<b>Investment Performance for Calendar Year Ending December 31, 2019<sup>1</sup></b>	
15	Enter actual rate of return - prior 1-year period	14.02%
16	Enter actual rate of return - prior 5-year period	6.39%
17	Enter actual rate of return - prior 10-year period	7.97%
<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>	19
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	\$33,674,832
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	\$67,752,296
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending June 30, 2020	\$2,897,100

1. The Municipal Employees’ Retirement System’s investment performance has been provided to GRS from MERS Investment Staff and included here for reporting purposes. This 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.”