MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN

ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2016

MADISON HEIGHTS, CITY OF (6308)

Spring, 2017

Madison Heights, 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 as of December 31, 2016. The report includes the determination of liabilities and contribution rates resulting from the participation of Madison Heights, City of (6308) in the Municipal Employees' Retirement System of Michigan ("MERS"). MERS is a nonprofit organization, independent from the State, that has provided retirement plans for municipal employees for 70 years. Madison Heights, City of is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees under the Michigan Constitution and the MERS Plan Document.

The purpose of the December 31, 2016 annual actuarial valuation is to:

- Measure funding progress
- Establish contribution requirements for the fiscal year beginning July 1, 2018
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements

This valuation report should not be relied upon for any other purpose. Reliance on information contained in this report by anyone for anything other than the intended purpose could be misleading.

The valuation uses financial data, plan provision data, and participant data as of December 31, 2016 furnished by MERS. In accordance with Actuarial Standards of Practice No. 23, the data was checked for internal and year to year consistency as well as general reasonableness, but was not otherwise audited. CBIZ Retirement Plan Services does not assume responsibility for the accuracy or completeness of the data used in this valuation.

The actuarial assumptions and methods are adopted by the MERS Retirement Board, and are reviewed every five years in an Experience Study. The most recent study was completed in 2015. Please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:
www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2016AnnualActuarialValuation-Appendix.pdf.

The actuarial assumptions used for this valuation produce results that we believe are reasonable.

To the best of our knowledge, this report is complete and accurate, was prepared in conformity with generally recognized actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and is in compliance with Act No. 220 of the Public Acts of 1996, as amended, and the MERS Plan Document as revised. All of the undersigned are members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. 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 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). CBIZ Retirement Plan Services is not responsible for the consequences of any unauthorized use.

You should notify MERS if you disagree with anything contained in the report or are aware of any information that would affect the results of the report that have not been communicated to us. 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,

Cathy Nagy, MAAA, FSA
Jim Koss, MAAA, ASA
Curtis Powell, MAAA, EA

TABLE OF CONTENTS

Executive Summary

Actuarial Assumptions and Methods Adopted with the December 31, 2015 Valuations

The actuarial assumptions and methods are adopted by the MERS Retirement Board, and are reviewed every five years in an Experience Study. The Experience Study is a comprehensive, detailed analysis that reviews MERS' funding policy and compares actual experience with the current actuarial assumptions; the study recommends adjustments as necessary. The most recent study was completed in 2015 and changes to the assumptions and methods based on the 2015 Experience Study were first reflected in the December 31, 2015 valuations. The impact of these changes is being phased-in over a 5 year period. The phase-in allows the employer to spread the impact of the new assumptions over 5 fiscal years. This report continues to provide contributions both with and without the phase-in adjustments.

The assumptions and methods are described in the Appendix on the MERS website.

As part of the recent Experience Study, the following changes are first reflected in the December 31, 2016 annual valuation:

- The asset smoothing was changed from 10 to 5 years. The gain (loss) recognized each year will be 20% of the current year's gain (loss) plus 20% of the gain (loss) from each of the 4 preceding years. The cumulative difference between the market value and valuation assets as of December 31, 2015 will be recognized over 4 years.
- Annual changes in Unfunded Accrued Liability (UAL) will be amortized over fixed periods, creating "layers" of UAL. This will require removing and creating "layers" of UAL on an annual basis.
    - Once the amortization period drops below 15 years (10 years for closed divisions), any future liability and asset gains or losses will be spread over a 15-year fixed period for open divisions and a 10-year fixed period for closed divisions — creating "layers" of UAL on an annual basis.
    - This transparent method allows tracking of what changed your UAL, and sets a fixed period in time in which that UAL change will be fully funded.

MERS created a dedicated resource page on their website for additional information on these topics (http://www.mersofmich.com/Employer/Work-Scenarios/Unfunded-Liability).

Funded Ratio and Required Employer Contributions

The MERS Defined Benefit Plan is an agent multiple-employer plan, meaning that assets are pooled for investment purposes but separate accounts are maintained for each individual employer. Each municipality is responsible for their own plan liabilities; MERS does not borrow from one municipality's account to pay for another.

The funded ratio of a plan is the percentage of the dollar value of the accrued benefits that is covered by the actuarial value of assets.

Your Funded Ratio:

	12/31/2016	12/31/2015
Funded Ratio	105%	64%

Michigan Law requires that pension plans be pre-funded, meaning money is set aside now to pay for future benefits. Pension plans are usually funded by employer and employee contributions, and investment income.

How quickly a plan attains the 100% funding goal depends on many factors such as:

- The current funded ratio
- The future experience of the plan
- The amortization period

It is more important to look at the trend in the funded ratio over a period of time than at a particular point in time.

Your Required Employer Contributions:

Your computed employer contributions are shown in the following table. Employee contributions, if any, are in addition to the computed employer contributions. Changes to the assumptions and methods based on the 2015 Experience Study were first reflected in the December 31, 2015 valuations. The impact of these changes is being phased-in over a 5 year period. The phase-in allows the employer to spread the impact of the new assumptions over 5 fiscal years. This valuation reflects the second year of the phase-in.

Your minimum required contribution is the amount in the “Phase-in” columns. By default, MERS will invoice you the phased-in contribution amount, but strongly encourages you to contribute more than the minimum required contribution. If for 2017 your municipality is making employer contributions based on rates without the phase-in applied, contact MERS to ensure this rate is used again for 2018 and not the defaulted phase-in rates.

	Percentage of Payroll				Monthly $ Based on Projected Payroll			
	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in	Phase-in	No Phase-in
Valuation Date:	12/31/2016	12/31/2016	12/31/2015	12/31/2015	12/31/2016	12/31/2016	12/31/2015	12/31/2015
Fiscal Year Beginning:	July 1, 2018	July 1, 2018	July 1, 2017	July 1, 2017	July 1, 2018	July 1, 2018	July 1, 2017	July 1, 2017
Division								
01 - Non-Union and Departme	-	-	-	-	$ 6,867	$ 6,867	$ 42,458	$ 46,422
10 - Gnrl Crth	-	-	-	-	928	928	6,235	7,227
11 - Dept of Public Svcs TP	-	-	-	-	3,559	3,559	33,756	38,536
12 - AFSCME	-	-	-	-	1,269	1,269	17,824	20,028
13 - Cler Tmst	-	-	-	-	3,721	3,721	12,542	15,094
14 - Disptchrs	-	-	-	-	1,695	1,695	1,422	1,786
Municipality Total					**$ 18,039**	**$ 18,039**	**$ 114,237**	**$ 129,093**

Employee contribution rates reflected in the valuations are shown below:

	Employee Contribution Rate	
Valuation Date:	12/31/2016	12/31/2015
Division		
01 - Non-Union and Departme	2.50%	2.50%
10 - Gnrl Crth	5.54%	5.54%
11 - Dept of Public Svcs TP	4.84%	4.84%
12 - AFSCME	4.94%	4.94%
13 - Cler Tmst	2.50%	2.50%
14 - Disptchrs	2.50%	2.50%

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.

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

If you are interested in making additional contributions, please contact MERS and they can assist you with evaluating your options.

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. For example:
    - Lower actual investment returns would result in higher required employer contributions, and vice-versa.
    - Smaller than assumed pay increases would lower required employer contributions.
    - Reductions in the number of active employees would lower required contribution dollars, but would usually increase the contribution rate expressed as a percentage of (the now lower) payroll.
    - Retirements at earlier ages than assumed would usually increase required employer contributions.
    - More non-vested terminations of employment than assumed would decrease required contributions.
    - More disabilities or survivor (death) benefits than assumed would increase required contributions.
    - Longer lifetimes after retirement than assumed would increase required employer contributions.

Actuarial valuations do not affect the ultimate cost of the plan; the benefit payments (current and future) determine the cost of the plan. Actuarial valuations only affect the timing of the contributions into the plan. Because assumptions are for the long term, plan experience will not match the actuarial assumptions in any given year (except by coincidence). Each annual actuarial valuation will adjust the required employer contributions up or down based on the prior year's actual experience.

Comments on Asset Smoothing

The actuarial value of assets, used to determine both your funded ratio and your required employer contribution, is based on a smoothed value of assets (10-year smoothing prior to 2016; 5-year smoothing beginning in 2016). A smoothing method reduces the volatility of the valuation results, which affects your required employer contribution and funded ratio. The smoothed actuarial rate of return for 2016 was 5.14%.

As of December 31, 2016 the actuarial value of assets is 108% of market value. This means that meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 7.75% investment return assumption.

If the December 31, 2016 valuation results were based on market value on that date instead of smoothed funding value: i) the funded percent of your entire municipality would be 97% (instead of 105%); and ii) your total employer contribution requirement for the fiscal year starting July 1, 2018 would be $ 249,060 (instead of $ 216,468).

The asset smoothing method is a powerful tool for reducing the volatility of your required employer contributions. **However, if the current 8% difference between the smoothed value and the market value of assets is not made up, the result would be gradual increases in your employer contribution requirement over the next few years (to around the levels described above).**

Risk Characteristics of Defined Benefit Plans

It is important to understand that Defined Benefit retirement plans, the plan sponsor, and the plan participants are exposed to certain risks. While risks cannot be eliminated entirely, they can be managed through various strategies. Below are a few examples of risk (this is not an all-inclusive list):

- Economic - investment return, wage inflation, etc.
- Demographic - longevity, disability, retirement, etc.
- Plan Sponsor and Employees - contribution volatility, attract/retain employees, etc.

The MERS Retirement Board adopts certain assumptions and methods to manage the economic and demographic risks, and the contribution volatility risks. For example, the investment risk is the largest economic risk and is managed by having a balanced portfolio and a clearly defined investment strategy. Demographic risks are managed by preparing special studies called experience studies on a regular basis to determine if the assumptions used are reasonable compared to the experience. Risk may be managed through a plan design that provides benefits that are sustainable in the long run. An Experience Study is completed every five years to review the assumptions and methods. The next Experience Study will be completed in 2020.

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.

The analysis in this section is intended to review the potential volatility of the actuarial valuation results. 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.

Many assumptions are important in determining the required employer contributions. In the table below, we show the impact of varying one actuarial assumption: the future annual rate of investment return. Lower investment returns would result in higher required employer contributions, and vice-versa.

The relative impact of each investment return scenario 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, 2016 valuation, and are for the municipality in total, not by division. These results do not reflect a 5-year phase in of the impact of the new actuarial assumptions.

	Assumed Future Annual Smoothed Rate of Investment Return			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
12/31/2016 Valuation Results	**5.75%**	**6.75%**	**7.75%**	**8.75%**
Accrued Liability	$ 49,557,340	$ 44,661,208	$ 40,503,803	$ 36,950,273
Valuation Assets	$ 42,487,975	$ 42,487,975	$ 42,487,975	$ 42,487,975
Unfunded Accrued Liability	$ 7,069,365	$ 2,173,233	$ (1,984,172)	$ (5,537,702)
Funded Ratio	86%	95%	105%	115%
Monthly Normal Cost	$ 33,351	$ 24,672	$ 18,039	$ 12,935
Monthly Amortization Payment	$ 74,755	$ 24,829	$ 0	$ 0
Total Employer Contribution[1]	$ 108,106	$ 49,501	$ 18,039	$ 12,935

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

Projection Scenarios

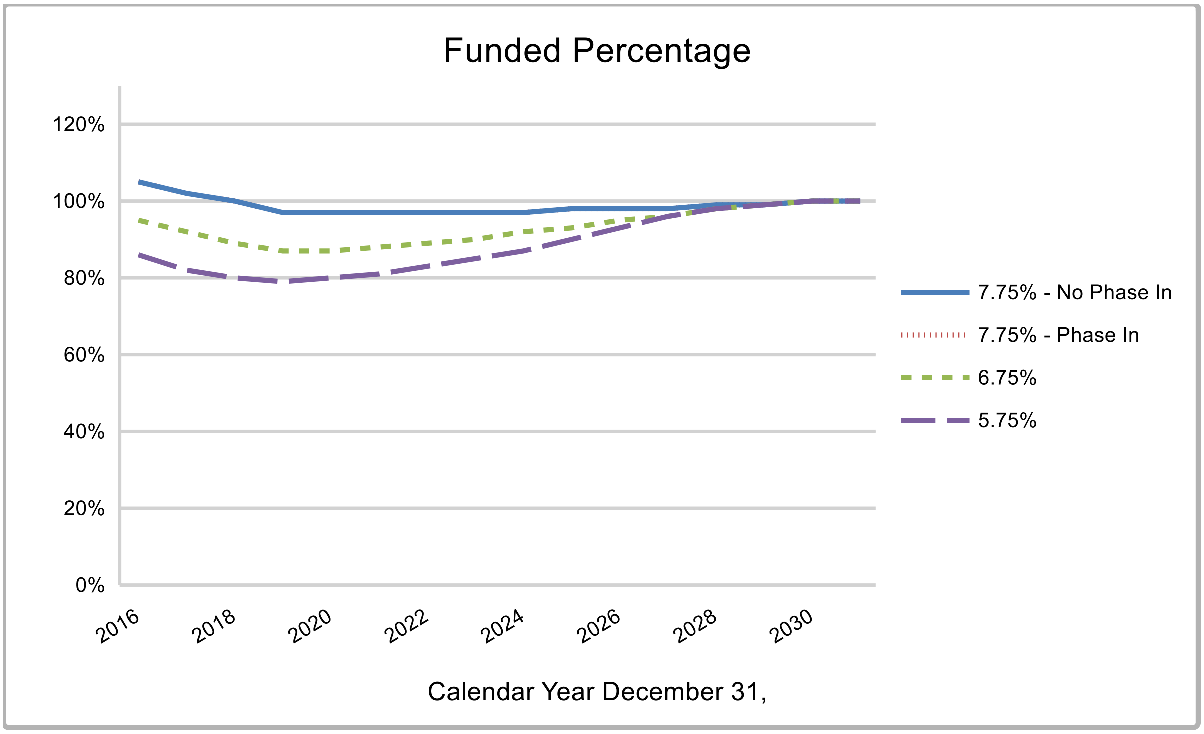
The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate assumed long-term investment return scenarios. All four projections take into account the past investment losses that will continue to affect the smoothed rate of return in the short term. Under the 7.75% scenarios, two sets of projections are shown:

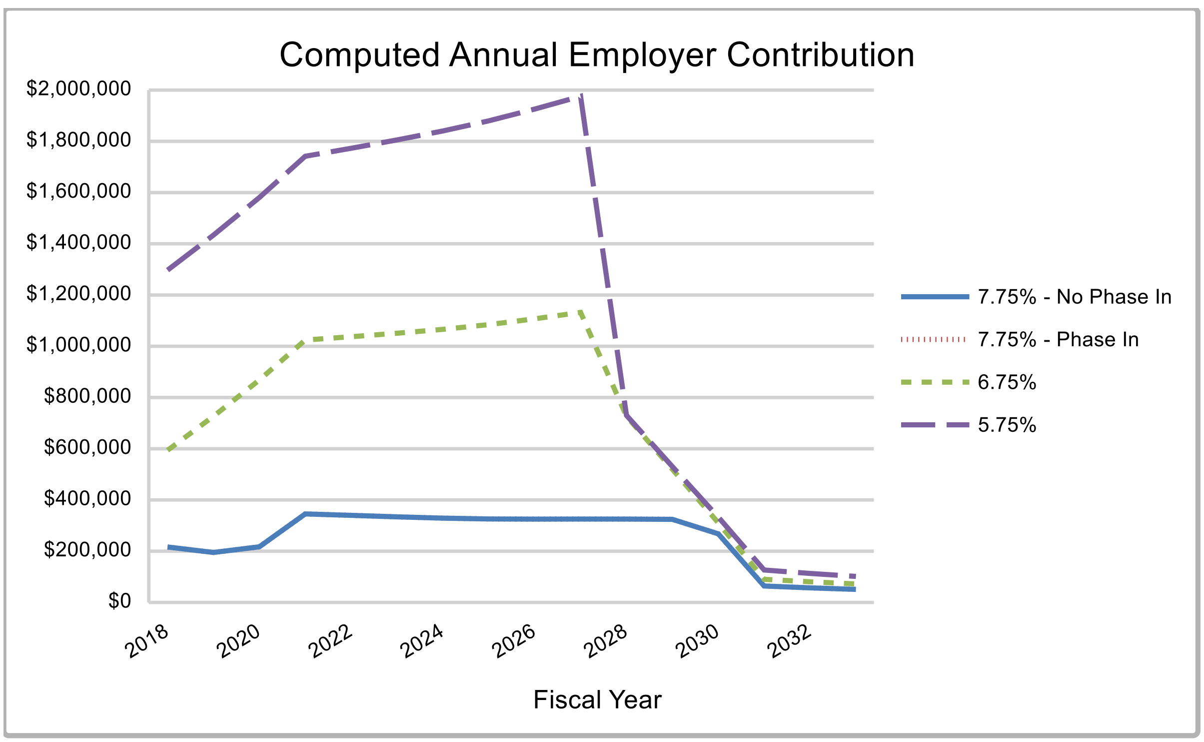
- Based on the phase-in over 5 fiscal years (beginning in 2017) of the increased contribution requirements associated with the new actuarial assumptions. This projects your minimum required contribution.
- Based on no phase-in of the increased contribution requirements.

The 7.75% scenarios provide an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.75% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. The 6.75% and 5.75% projections provide an indication of the potential required employer contribution if MERS were to realize investment returns of 6.75% and 5.75% over the long-term.

The projections are shown both in tabular and graphical form in total for the employer. The tables show projections for six years. The graphs show projections for fifteen years.

Valuation Year Ending 12/31	Fiscal Year Beginning 7/1	Actuarial Accrued Liability	Valuation Assets	Funded Percentage	Computed Annual Employer Contribution
7.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
WITH 5-YEAR PHASE-IN					
2016	2018	$ 40,503,803	$ 42,487,975	105%	$ 216,468
2017	2019	41,100,000	42,100,000	102%	195,000
2018	2020	41,600,000	41,500,000	100%	217,000
2019	2021	42,000,000	40,600,000	97%	346,000
2020	2022	42,100,000	40,700,000	97%	340,000
2021	2023	42,200,000	40,800,000	97%	334,000
NO 5-YEAR PHASE-IN					
2016	2018	$ 40,503,803	$ 42,487,975	105%	$ 216,468
2017	2019	41,100,000	42,100,000	102%	195,000
2018	2020	41,600,000	41,500,000	100%	217,000
2019	2021	42,000,000	40,600,000	97%	346,000
2020	2022	42,100,000	40,700,000	97%	340,000
2021	2023	42,200,000	40,800,000	97%	334,000
6.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2016	2018	$ 44,661,208	$ 42,487,975	95%	$ 594,012
2017	2019	45,300,000	41,700,000	92%	727,000
2018	2020	45,700,000	40,900,000	89%	868,000
2019	2021	46,000,000	40,100,000	87%	1,020,000
2020	2022	46,100,000	40,300,000	87%	1,040,000
2021	2023	46,200,000	40,700,000	88%	1,050,000
5.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2016	2018	$ 49,557,340	$ 42,487,975	86%	$ 1,297,272
2017	2019	50,100,000	41,300,000	82%	1,430,000
2018	2020	50,500,000	40,400,000	80%	1,580,000
2019	2021	50,800,000	39,900,000	79%	1,740,000
2020	2022	50,800,000	40,600,000	80%	1,770,000
2021	2023	50,700,000	41,300,000	81%	1,810,000


Funded Percentage
120%
100%
80%
60%
40%
20%
0%
2016
2018
2020
2022
2024
2026
2028
2030
Calendar Year December 31,
7.75% - No Phase In
7.75% - Phase In
6.75%
5.75%


Computed Annual Employer Contribution
$2,000,000
$1,800,000
$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
2018
2020
2022
2024
2026
2028
2030
2032
Fiscal Year
7.75% - No Phase In
7.75% - Phase In
6.75%
5.75%

Employer Contribution Details For the Fiscal Year Beginning July 1, 2018

Table 1

Division	Employer Contributions[1] Normal Cost	Payment of the Unfunded Accrued Liability[4]	Computed Employer Contribut. No Phase-In	Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In[5]	Blended ER Rate With Phase-In[5]	Employee Contribut. Rate	Employee Contribut. Conversion Factor[2]
Percentage of Payroll								
01 - Non-Union and Depa	-	-	-	-			2.50%	
10 - Gnrl Crth	-	-	-	-			5.54%	
11 - Dept of Public Svc	-	-	-	-			4.84%	
12 - AFSCME	-	-	-	-			4.94%	
13 - Cler Tmst	-	-	-	-			2.50%	
14 - Disptchrs	-	-	-	-			2.50%	
Estimated Monthly Contribution[3]								
01 - Non-Union and Depa	$ 6,867	$ 0	$ 6,867	$ 6,867				
10 - Gnrl Crth	928	0	928	928				
11 - Dept of Public Svc	3,559	0	3,559	3,559				
12 - AFSCME	1,269	0	1,269	1,269				
13 - Cler Tmst	3,721	0	3,721	3,721				
14 - Disptchrs	1,695	0	1,695	1,695				
Total Municipality	**$ 18,039**	**$ 0**	**$ 18,039**	**$ 18,039**				
Estimated Annual Contribution[3]	**$ 216,468**	**$ 0**	**$ 216,468**	**$ 216,468**				

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

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

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

4 If projected assets exceed projected liabilities as of the beginning of the July 1, 2018 fiscal year, the negative unfunded accrued liability is treated as overfunding credit and is used to reduce the contribution. This amortization is used to reduce the employer contribution rate. 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.

[5] For linked divisions, the employer will be invoiced the Computed Employer Contribution with 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 800-767-2308.

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

Benefit Provisions

Table 2

01 - Non-Union and Department Heads: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	3 years	3 years
Employee Contributions:	2.50%	2.50%
DC Plan for New Hires:	7/1/2010	7/1/2010
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

10 - Gnrl Crth: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	5 years	5 years
Employee Contributions:	5.54%	5.54%
DC Plan for New Hires:	10/1/2006	10/1/2006
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

11 - Dept of Public Svcs TPOAM: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.84%	4.84%
DC Plan for New Hires:	8/1/2006	8/1/2006
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

Table 2 (continued)

12 - AFSCME: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
Employee Contributions:	4.94%	4.94%
DC Plan for New Hires:	7/1/2010	7/1/2010
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

13 - Cler Tmst: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.50%	2.50%
DC Plan for New Hires:	7/1/2010	7/1/2010
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

14 - Disptchrs: Closed to new hires

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.50%	2.50%
DC Plan for New Hires:	9/1/2010	9/1/2010
Act 88:	Yes (Adopted 2/9/1970)	Yes (Adopted 2/9/1970)

Participant Summary

Table 3

Division	2016 Valuation Number	2016 Valuation Annual Payroll[1]	2015 Valuation Number	2015 Valuation Annual Payroll[1]	2016 Valuation Average Age	2016 Valuation Average Benefit Service[2]	2016 Valuation Average Eligibility Service[2]
01 - Non-Union and Depart							
Active Employees	9	$ 830,202	10	$ 883,258	51.8	17.0	20.5
Vested Former Employees	1	27,651	1	27,651	48.3	11.7	11.7
Retirees and Beneficiaries	23	712,041	23	720,566	71.5		
10 - Gnrl Crth							
Active Employees	4	$ 212,327	4	$ 213,988	51.6	20.3	20.3
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	10	190,230	10	190,230	68.7		
11 - Dept of Public Svcs							
Active Employees	13	$ 722,547	15	$ 831,702	48.2	20.7	20.7
Vested Former Employees	2	22,765	3	30,795	55.1	12.0	14.5
Retirees and Beneficiaries	44	851,612	41	810,922	66.8		
12 - AFSCME							
Active Employees	3	$ 218,625	3	$ 219,313	47.4	19.9	22.3
Vested Former Employees	6	77,113	6	77,113	51.6	10.9	17.3
Retirees and Beneficiaries	19	476,235	19	476,235	70.6		
13 - Cler Tmst							
Active Employees	15	$ 729,757	14	$ 690,139	54.9	22.2	22.2
Vested Former Employees	10	82,288	10	82,288	51.4	10.3	14.4
Retirees and Beneficiaries	30	435,808	31	441,252	72.8		
14 - Disptchrs							
Active Employees	5	$ 256,463	5	$ 260,270	43.7	16.0	16.0
Vested Former Employees	4	37,073	4	37,073	47.3	11.4	17.6
Retirees and Beneficiaries	1	13,799	1	13,799	64.6		
Total Municipality							
Active Employees	**49**	**$ 2,969,921**	**51**	**$ 3,098,670**	**50.7**	**19.9**	**20.7**
Vested Former Employees	**23**	**246,890**	**24**	**254,920**	**50.9**	**10.9**	**15.6**
Retirees and Beneficiaries	**127**	**2,679,725**	**125**	**2,653,004**	**69.8**		
Total Participants	**199**		**200**				

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

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

Reported Assets (Market Value)

Table 4

Division	2016 Valuation		2015 Valuation	
	Employer and Retiree[1]	Employee[2]	Employer and Retiree[1]	Employee[2]
01 - Non-Union and Department Heads	$ 10,761,494	$ 140,157	$ 5,044,498	$ 126,471
10 - Gnrl Crth	2,324,899	141,228	1,443,508	128,374
11 - Dept of Public Svcs TPOAM	11,498,768	408,966	6,698,696	415,021
12 - AFSCME	5,940,834	161,924	3,177,566	149,850
13 - Cler Tmst	6,839,054	232,774	4,688,468	204,647
14 - Disptchrs	966,727	29,997	829,245	24,447
Municipality Total	**$ 38,331,776**	**$ 1,115,046**	**$ 21,881,981**	**$ 1,048,810**
Combined Reserves	**$ 39,446,822**		**$ 22,930,791**	

[1] Reserve for Employer Contributions and Benefit Payments

[2] Reserve for Employee Contributions

The December 31, 2016 valuation assets are equal to 1.077095 times the reported market value of assets (compared to 1.135382 as of December 31, 2015). The derivation of valuation assets is described, and detailed calculations of valuation assets are shown, in the Appendix.

Flow of Valuation Assets

Table 5

Year Ended 12/31	Employer Contributions Required	Employer Contributions Additional	Employee Contributions	Investment Income	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
2006	$ 577,333		$ 61,632	$ 1,937,949	$ (1,641,503)	$ (2,139)	$ 0	$ 25,391,829
2007	668,249		65,339	2,054,668	(1,638,877)	0	0	26,541,208
2008	671,925		60,985	1,102,980	(1,734,081)	(4,983)	(3,514)	26,634,520
2009	682,056		59,268	990,212	(1,791,304)	(5,649)	0	26,569,103
2010	729,975		56,090	1,238,090	(2,045,599)	0	0	26,547,659
2011	769,629	$ 0	92,448	1,177,872	(2,287,911)	0	0	26,299,697
2012	735,318	97,628	148,561	1,058,049	(2,360,656)	0	0	25,978,597
2013	839,178	141,000	136,395	1,431,930	(2,493,847)	(3,492)	0	26,029,761
2014	969,840	0	134,964	1,421,442	(2,554,256)	(3,658)	8,120	26,006,213
2015	1,077,399	231,772	115,135	1,228,473	(2,618,833)	(4,951)	0	26,035,208
2016	939,669	15,276,020	107,113	2,799,114	(2,669,149)	0	0	42,487,975

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.

In the actuarial valuation additional employer contributions are combined with required contributions and used to reduce computed future required employer contributions.

The investment income column reflects the recognized investment income based on the smoothed value of assets. It does not reflect the market value investment return in any given year.

Actuarial Accrued Liabilities and Valuation Assets
As of December 31, 2016

Table 6

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
01 - Non-Union and Department Heads				
Active Employees	$ 3,633,811	$ 4,262,906	117.3%	$ (629,095)
Vested Former Employees	119,945	119,945	100.0%	0
Retirees And Beneficiaries	7,359,263	7,359,263	100.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 11,113,019**	**$ 11,742,114**	**105.7%**	**$ (629,095)**
10 - Gnrl Crth				
Active Employees	$ 804,097	$ 926,554	115.2%	$ (122,457)
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	1,725,573	1,725,573	100.0%	0
Pending Refunds	4,126	4,126	100.0%	0
Total	**$ 2,533,796**	**$ 2,656,253**	**104.8%**	**$ (122,457)**
11 - Dept of Public Svcs TPOAM				
Active Employees	$ 3,047,073	$ 3,747,765	123.0%	$ (700,692)
Vested Former Employees	211,350	211,350	100.0%	0
Retirees And Beneficiaries	8,866,514	8,866,514	100.0%	0
Pending Refunds	132	132	100.0%	0
Total	**$ 12,125,069**	**$ 12,825,761**	**105.8%**	**$ (700,692)**
12 - AFSCME				
Active Employees	$ 888,210	$ 1,058,859	119.2%	$ (170,649)
Vested Former Employees	560,133	560,133	100.0%	0
Retirees And Beneficiaries	4,940,472	4,940,472	100.0%	0
Pending Refunds	13,786	13,786	100.0%	0
Total	**$ 6,402,601**	**$ 6,573,250**	**102.7%**	**$ (170,649)**
13 - Cler Tmst				
Active Employees	$ 2,930,771	$ 3,227,846	110.1%	$ (297,075)
Vested Former Employees	544,276	544,276	100.0%	0
Retirees And Beneficiaries	3,840,002	3,840,002	100.0%	0
Pending Refunds	4,907	4,907	100.0%	0
Total	**$ 7,319,956**	**$ 7,617,031**	**104.1%**	**$ (297,075)**
14 - Disptchrs				
Active Employees	$ 673,737	$ 737,941	109.5%	$ (64,204)
Vested Former Employees	188,113	188,113	100.0%	0
Retirees And Beneficiaries	147,512	147,512	100.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 1,009,362**	**$ 1,073,566**	**106.4%**	**$ (64,204)**

Table 6 (continued)

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
Total Municipality				
Active Employees	**$ 11,977,699**	**$ 13,961,871**	**116.6%**	**$ (1,984,172)**
Vested Former Employees	**1,623,817**	**1,623,817**	**100.0%**	**0**
Retirees and Beneficiaries	**26,879,336**	**26,879,336**	**100.0%**	**0**
Pending Refunds	**22,951**	**22,951**	**100.0%**	**0**
Total Participants	**$ 40,503,803**	**$ 42,487,975**	**104.9%**	**$ (1,984,172)**

[1] Includes both employer and employee assets.

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

See Section 46 of the Plan Document for MERS Fiscal Responsibility policy, on the MERS website at: https://employerportal.mersofmich.com/SharePointFormsService/Default.aspx?Publication=MERSPlanDocument.pdf.

Actuarial Accrued Liabilities - Comparative Schedule

Table 7

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2002	$ 23,826,929	$ 22,303,419	94%	$ 1,523,510
2003	25,520,723	23,179,652	91%	2,341,071
2004	27,642,742	23,897,237	86%	3,745,505
2005	28,414,461	24,458,557	86%	3,955,904
2006	29,681,342	25,391,829	86%	4,289,513
2007	31,205,728	26,541,208	85%	4,664,520
2008	32,402,367	26,634,520	82%	5,767,847
2009	32,752,091	26,569,103	81%	6,182,988
2010	34,126,156	26,547,659	78%	7,578,497
2011	35,497,987	26,299,697	74%	9,198,290
2012	36,066,667	25,978,597	72%	10,088,070
2013	37,260,900	26,029,761	70%	11,231,139
2014	38,278,641	26,006,213	68%	12,272,428
2015	40,440,589	26,035,208	64%	14,405,381
2016	40,503,803	42,487,975	105%	(1,984,172)

Notes: Actuarial assumptions were revised for the 2004, 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Division 01 - Non-Union and Department Heads

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 8,019,042	$ 6,088,847	76%	$ 1,930,195
2007	8,274,109	6,309,434	76%	1,964,675
2008	8,685,702	6,286,268	72%	2,399,434
2009	8,038,466	5,658,718	70%	2,379,748
2010	8,479,273	5,680,461	67%	2,798,812
2011	9,002,861	5,618,427	62%	3,384,434
2012	9,210,025	5,577,487	61%	3,632,538
2013	10,121,532	5,664,596	56%	4,456,936
2014	10,813,793	5,826,893	54%	4,986,900
2015	11,254,450	5,871,025	52%	5,383,425
2016	11,113,019	11,742,114	106%	(629,095)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-01: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees Number	Active Employees Annual Payroll	Computed Employer Contribution[1]	Employee Contribution Rate[2]
2006	15	$ 1,206,690	19.59%	0.00%
2007	14	1,182,345	20.01%	0.00%
2008	14	1,174,358	22.90%	0.00%
2009	14	1,202,689	23.37%	0.00%
2010	12	1,031,825	$ 24,020	0.00%
2011	11	972,440	$ 26,338	2.50%
2012	11	989,346	$ 28,727	2.50%
2013	10	834,038	$ 34,367	2.50%
2014	11	892,963	$ 40,155	2.50%
2015	10	883,258	$ 46,422	2.50%
2016	9	830,202	$ 6,867	2.50%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 10 - Gnrl Crth

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 1,410,541	$ 1,326,493	94%	$ 84,048
2007	1,510,707	1,413,469	94%	97,238
2008	1,613,659	1,449,675	90%	163,984
2009	1,979,624	1,791,716	91%	187,908
2010	2,014,257	1,776,297	88%	237,960
2011	2,082,999	1,767,933	85%	315,066
2012	2,129,740	1,745,763	82%	383,977
2013	2,209,968	1,757,727	80%	452,241
2014	2,251,628	1,771,039	79%	480,589
2015	2,530,017	1,784,687	71%	745,330
2016	2,533,796	2,656,253	105%	(122,457)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-10: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2006	8	$ 378,402	7.00%	3.04%
2007	7	346,669	$ 1,940	3.04%
2008	7	354,953	$ 2,943	3.04%
2009	7	358,201	$ 2,996	3.04%
2010	6	309,465	$ 3,312	3.04%
2011	6	305,279	$ 3,495	5.54%
2012	6	307,811	$ 4,094	5.54%
2013	6	309,969	$ 4,803	5.54%
2014	6	306,656	$ 5,386	5.54%
2015	4	213,988	$ 7,227	5.54%
2016	4	212,327	$ 928	5.54%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 11 - Dept of Public Svcs TPOAM

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 10,061,921	$ 8,887,396	88%	$ 1,174,525
2007	10,438,648	9,206,357	88%	1,232,291
2008	10,780,891	9,161,812	85%	1,619,079
2009	10,290,554	8,502,821	83%	1,787,733
2010	10,634,653	8,300,780	78%	2,333,873
2011	10,798,179	8,192,100	76%	2,606,079
2012	10,921,274	8,075,242	74%	2,846,032
2013	11,218,116	8,096,873	72%	3,121,243
2014	11,704,457	8,088,521	69%	3,615,936
2015	12,232,840	8,076,786	66%	4,156,054
2016	12,125,069	12,825,761	106%	(700,692)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-11: Computed Employer Contributions - Comparative Schedule

Valuation Date	Active Employees		Computed Employer	Employee Contribution
December 31	Number	Annual Payroll	Contribution[1]	Rate[2]
2006	29	$ 1,374,577	10.95%	2.34%
2007	29	1,461,577	$ 14,063	2.34%
2008	28	1,433,600	$ 18,318	2.34%
2009	27	1,334,228	$ 18,423	2.34%
2010	21	1,027,989	$ 20,370	2.34%
2011	20	1,047,392	$ 22,156	4.84%
2012	18	904,241	$ 24,466	4.84%
2013	18	941,118	$ 28,778	4.84%
2014	16	911,310	$ 35,901	4.84%
2015	15	831,702	$ 38,536	4.84%
2016	13	722,547	$ 3,559	4.84%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 12 - AFSCME

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 4,333,119	$ 3,748,631	87%	$ 584,488
2007	4,718,282	3,957,761	84%	760,521
2008	4,851,889	3,978,310	82%	873,579
2009	5,195,434	4,109,828	79%	1,085,606
2010	5,647,986	4,356,935	77%	1,291,051
2011	6,077,256	4,318,993	71%	1,758,263
2012	6,195,017	4,222,690	68%	1,972,327
2013	6,313,706	4,147,075	66%	2,166,631
2014	6,083,731	3,889,273	64%	2,194,458
2015	6,373,453	3,777,888	59%	2,595,565
2016	6,402,601	6,573,250	103%	(170,649)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-12: Computed Employer Contributions - Comparative Schedule

Valuation Date	Active Employees		Computed Employer	Employee Contribution
December 31	Number	Annual Payroll	Contribution[1]	Rate[2]
2006	10	$ 637,287	11.16%	2.44%
2007	9	615,532	12.95%	2.44%
2008	10	681,062	14.45%	2.44%
2009	10	683,363	16.61%	2.44%
2010	10	648,391	$ 10,539	2.44%
2011	9	618,088	$ 12,432	4.94%
2012	6	394,205	$ 13,283	4.94%
2013	6	414,844	$ 15,302	4.94%
2014	3	201,718	$ 15,088	4.94%
2015	3	219,313	$ 20,028	4.94%
2016	3	218,625	$ 1,269	4.94%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 13 - Cler Tmst

Table 8-13: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 5,387,984	$ 4,847,823	90%	$ 540,161
2007	5,669,599	5,098,949	90%	570,650
2008	5,820,235	5,160,464	89%	659,771
2009	6,621,959	5,855,179	88%	766,780
2010	6,750,943	5,722,160	85%	1,028,783
2011	6,877,043	5,634,859	82%	1,242,184
2012	6,890,158	5,542,972	80%	1,347,186
2013	6,641,782	5,495,553	83%	1,146,229
2014	6,603,201	5,507,732	83%	1,095,469
2015	7,090,875	5,555,555	78%	1,535,320
2016	7,319,956	7,617,031	104%	(297,075)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-13: Computed Employer Contributions - Comparative Schedule

Valuation Date	Active Employees		Computed Employer	Employee Contribution
December 31	Number	Annual Payroll	Contribution[1]	Rate[2]
2006	28	$ 1,195,420	11.20%	0.00%
2007	30	1,318,856	11.06%	0.00%
2008	29	1,311,602	11.99%	0.00%
2009	29	1,330,765	12.64%	0.00%
2010	23	1,029,122	$ 12,383	0.00%
2011	21	952,124	$ 12,117	2.50%
2012	20	913,203	$ 12,910	2.50%
2013	18	819,952	$ 11,222	2.50%
2014	15	686,863	$ 10,603	2.50%
2015	14	690,139	$ 15,094	2.50%
2016	15	729,757	$ 3,721	2.50%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 14 - Disptchrs

Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	$ 468,735	$ 492,639	105%	$ (23,904)
2007	594,383	555,238	93%	39,145
2008	649,991	597,991	92%	52,000
2009	626,054	650,841	104%	(24,787)
2010	599,044	711,026	119%	(111,982)
2011	659,649	767,385	116%	(107,736)
2012	720,453	814,443	113%	(93,990)
2013	755,796	867,937	115%	(112,141)
2014	821,831	922,755	112%	(100,924)
2015	958,954	969,267	101%	(10,313)
2016	1,009,362	1,073,566	106%	(64,204)

Notes: Actuarial assumptions were revised for the 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.

Table 9-14: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees: Number	Active Employees: Annual Payroll	Computed Employer Contribution[1]	Employee Contribution Rate[2]
2006	9	$ 398,221	6.96%	0.00%
2007	9	421,851	7.71%	0.00%
2008	9	414,190	9.45%	0.00%
2009	8	382,404	8.10%	0.00%
2010	6	295,262	4.49%	0.00%
2011	6	294,722	$ 644	2.50%
2012	6	296,804	$ 978	2.50%
2013	6	275,605	$ 642	2.50%
2014	5	245,316	$ 597	2.50%
2015	5	260,270	$ 1,786	2.50%
2016	5	256,463	$ 1,695	2.50%

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. The contribution requirements including the 5-year phase-in are shown on page 7.

See the Benefit Provision History on page 38 for past benefit provision changes.

Division 01 - Non-Union and Department Heads

Table 10-01: Layered Amortization Schedule

				Amounts for Fiscal Year Beginning 7/1/2018		
Type of UAL	Date Established	Original Balance	Original Amortization Period**	Outstanding UAL Balance*	Amortization Period**	Amortization Payment
Gain/Loss	12/31/2016	(628,579)	10	(703,049)	10	(85,992)
Total				**$ (703,049)**		**$ (85,992)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

Division 10 - Gnrl Crth

Table 10-10: Layered Amortization Schedule

				Amounts for Fiscal Year Beginning 7/1/2018		
Type of UAL	**Date Established**	**Original Balance**	**Original Amortiza-tion Period****	**Outstanding UAL Balance***	**Amortiza-tion Period****	**Amortization Payment**
Gain/Loss	12/31/2016	(123,956)	10	(138,642)	10	(16,956)
Total				**$ (138,642)**		**$ (16,956)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

Division 11 - Dept of Public Svcs TPOAM

Table 10-11: Layered Amortization Schedule

				Amounts for Fiscal Year Beginning 7/1/2018		
Type of UAL	**Date Established**	**Original Balance**	**Original Amortization Period****	**Outstanding UAL Balance***	**Amortization Period****	**Amortization Payment**
Gain/Loss	12/31/2016	(704,859)	10	(788,366)	10	(96,432)
Total				**$ (788,366)**		**$ (96,432)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

Division 12 - AFSCME

Table 10-12: Layered Amortization Schedule

				Amounts for Fiscal Year Beginning 7/1/2018		
Type of UAL	Date Established	Original Balance	Original Amortization Period**	Outstanding UAL Balance*	Amortization Period**	Amortization Payment
Gain/Loss	12/31/2016	(170,098)	10	(190,250)	10	(23,268)
Total				**$ (190,250)**		**$ (23,268)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

Division 13 - Cler Tmst

Table 10-13: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance	Original Amortization Period**	Amounts for Fiscal Year Beginning 7/1/2018: Outstanding UAL Balance*	Amortization Period**	Amortization Payment
Gain/Loss	12/31/2016	(292,585)	10	(327,249)	10	(40,032)
Total				**$ (327,249)**		**$ (40,032)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

Division 14 - Disptchrs

Table 10-14: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance	Original Amortization Period**	Amounts for Fiscal Year Beginning 7/1/2018: Outstanding UAL Balance*	Amortization Period**	Amortization Payment
Gain/Loss	12/31/2016	(57,963)	10	(64,830)	10	(7,932)
Total				**$ (64,830)**		**$ (7,932)**

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

** Please see the Appendix on the MERS website for a description of the amortization policy.

The unfunded accrued liability as of December 31, 2016 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2016 valuation to take into account the expected future contributions that are based on past valuations. The projected unfunded accrued liability is amortized over the appropriate period.

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 www.mersofmich.com.

Actuarial Valuation Date:	12/31/2016
Measurement Date of Total Pension Liability (TPL):	12/31/2016

At 12/31/2016, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	127
Inactive employees entitled to but not yet receiving benefits:	23
Active employees:	49
	199

Total Pension Liability as of 12/31/2015 measurement date:	$	39,482,275
Total Pension Liability as of 12/31/2016 measurement date:	$	39,563,400
Service Cost for the year ending on the 12/31/2016 measurement date:	$	335,411

Change in the Total Pension Liability due to:

- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	(650,371)
- Changes in assumptions[2]:	$	0

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

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

Average expected remaining service lives of all employees (active and inactive):		2
Covered employee payroll: (Needed for Required Supplementary Information)	$	2,969,921

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

	1% Decrease (7.00%)	Current Discount Rate (8.00%)	1% Increase (9.00%)
Change in Net Pension Liability as of 12/31/2016:	$ 3,995,073	-	$ (3,420,265)

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.

01 - Non-Union and Department Heads

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
8/1/2011	Member Contribution Rate 2.50%
7/1/2010	DC Adoption Date 07-01-2010
7/1/1995	Benefit B-4 (80% max)
1/1/1987	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1987	2.25% Multiplier (no max)
1/1/1987	Benefit F55 (With 15 Years of Service)
1/1/1985	Benefit C-2/Base B-1
7/1/1984	Member Contribution Rate 0.00%
7/1/1975	Benefit C-1 (Old)
2/9/1970	Covered by Act 88
7/1/1956	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1956	10 Year Vesting
7/1/1956	Benefit C (Old)
7/1/1956	Member Contribution Rate 3.00% Under $4,200.00 - Then 5.00%
	Fiscal Month - July

10 - Gnrl Crth

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
8/1/2011	Member Contribution Rate 5.54%
10/1/2006	DC Adoption Date 10-01-2006
7/1/1998	Benefit B-2
7/1/1998	Benefit F50 (With 25 Years of Service)
7/1/1998	Member Contribution Rate 3.04%
7/1/1990	Benefit C-2/Base B-1
7/1/1990	Benefit F55 (With 15 Years of Service)
7/1/1984	Member Contribution Rate 0.00%
7/1/1975	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1975	10 Year Vesting
7/1/1975	Benefit C-1 (Old)
2/9/1970	Covered by Act 88
	Fiscal Month - July

11 - Dept of Public Svcs TPOAM

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
8/1/2011	Member Contribution Rate 4.84%
4/1/2010	Temporary 30 Years & Out (04/01/2010 - 06/30/2010)

11 - Dept of Public Svcs TPOAM

8/1/2006	DC Adoption Date 08-01-2006
1/1/2005	Member Contribution Rate 2.34%
7/1/2004	Benefit B-3 (80% max)
7/1/2004	Member Contribution Rate 3.09%
1/1/1994	Benefit B-2
1/1/1994	Benefit F55 (With 15 Years of Service)
1/1/1994	Member Contribution Rate 1.50%
1/1/1987	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1987	10 Year Vesting
1/1/1987	Benefit C-2/Base B-1
7/1/1984	Member Contribution Rate 0.00%
2/9/1970	Covered by Act 88
	Fiscal Month - July

12 - AFSCME

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
8/1/2011	Member Contribution Rate 4.94%
7/1/2010	DC Adoption Date 07-01-2010
7/1/2004	Member Contribution Rate 2.44%
8/1/2003	Benefit B-3 (80% max)
8/1/2003	Member Contribution Rate 3.26%
7/1/2003	Member Contribution Rate 0.82%
6/1/1998	Benefit B-2
6/1/1998	Member Contribution Rate 1.63%
7/1/1987	Benefit C-2/Base B-1
7/1/1987	Benefit F55 (With 15 Years of Service)
7/1/1984	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1984	10 Year Vesting
7/1/1984	Member Contribution Rate 0.00%
2/9/1970	Covered by Act 88
	Fiscal Month - July

13 - Cler Tmst

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
8/1/2011	Member Contribution Rate 2.50%
7/1/2010	DC Adoption Date 07-01-2010
7/1/2004	Member Contribution Rate 0.00%
7/1/2003	Member Contribution Rate 0.90%
1/1/1994	Benefit B-2
1/1/1994	Benefit F55 (With 15 Years of Service)
1/1/1994	Member Contribution Rate 1.80%
1/1/1994	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1994	10 Year Vesting

13 - Cler Tmst

2/9/1970	Covered by Act 88
	Fiscal Month - July

14 - Disptchrs

12/1/2016	Service Credit Purchase Estimates - No
7/1/2016	Option B Yes
12/1/2011	Member Contribution Rate 2.50%
9/1/2010	DC Adoption Date 09-01-2010
12/1/2003	Benefit B-2
7/1/1990	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1990	10 Year Vesting
7/1/1990	Benefit C-2/Base B-1
7/1/1990	Benefit F55 (With 15 Years of Service)
7/1/1990	Member Contribution Rate 0.00%
2/9/1970	Covered by Act 88
	Fiscal Month - July

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

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

Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	4.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	80%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Divisions

Closed Division	Amortization Option
All Closed Divisions	Accelerated to 15-Year Amortization