



MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN
ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2016
YPSILANTI, CITY OF (8101)



Spring, 2017

Ypsilanti, 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 Ypsilanti, City of (8101) 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. Ypsilanti, 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

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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.
 - o 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.
 - o 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	133%	129%

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 - Gnrl Non Un	-	-	-	-	\$ 0	\$ 0	\$ 0	\$ 0
10 - Gnrl AFSCME	-	-	-	-	0	0	0	0
11 - Gnrl Dspth	-	-	-	-	0	0	0	0
14 - Cty Mgr	-	-	-	-	178	226	15	79
15 - City Mgr. aft. 7/1/201	-	-	-	4.95%	0	0	312	452
16 - AFSCME after 7/1/2010	0.00%	0.00%	0.00%	0.00%	0	0	0	0
17 - Non-Union after 1/1/20	6.08%	6.38%	6.50%	6.87%	4,370	4,583	5,007	5,291
Municipality Total					\$ 4,548	\$ 4,809	\$ 5,334	\$ 5,822

Employee contribution rates reflected in the valuations are shown below:

Valuation Date:	Employee Contribution Rate	
	12/31/2016	12/31/2015
Division		
01 - Gnrl Non Un	5.00%	5.00%
10 - Gnrl AFSCME	5.00%	5.00%
11 - Gnrl Dspth	10.00%	10.00%
14 - Cty Mgr	0.00%	0.00%
15 - City Mgr. aft. 7/1/201	5.00%	5.00%
16 - AFSCME after 7/1/2010	5.00%	5.00%
17 - Non-Union after 1/1/20	5.00%	5.00%

The employer may contribute more than the minimum required contributions, as these additional contributions will earn investment income and may result in lower future contribution requirements. **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:
 - o Lower actual investment returns would result in higher required employer contributions, and vice-versa.
 - o Smaller than assumed pay increases would lower required employer contributions.
 - o 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.
 - o Retirements at earlier ages than assumed would usually increase required employer contributions.
 - o More non-vested terminations of employment than assumed would decrease required contributions.
 - o More disabilities or survivor (death) benefits than assumed would increase required contributions.
 - o 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 123% (instead of 133%); and ii) your total employer contribution requirement for the fiscal year starting July 1, 2018 would be \$ 62,040 (instead of \$ 57,708).

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
	5.75%	6.75%	7.75%	8.75%
12/31/2016 Valuation Results				
Accrued Liability	\$ 18,032,069	\$ 16,147,944	\$ 14,560,664	\$ 13,218,494
Valuation Assets	\$ 19,289,792	\$ 19,289,792	\$ 19,289,792	\$ 19,289,792
Unfunded Accrued Liability	\$ (1,257,723)	\$ (3,141,848)	\$ (4,729,128)	\$ (6,071,298)
Funded Ratio	107%	120%	133%	146%
Monthly Normal Cost	\$ 27,743	\$ 20,391	\$ 14,723	\$ 10,319
Monthly Amortization Payment	\$ (10,217)	\$ (31,692)	\$ (9,919)	\$ (7,508)
Total Employer Contribution¹	\$ 23,000	\$ 8,408	\$ 4,809	\$ 2,811

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

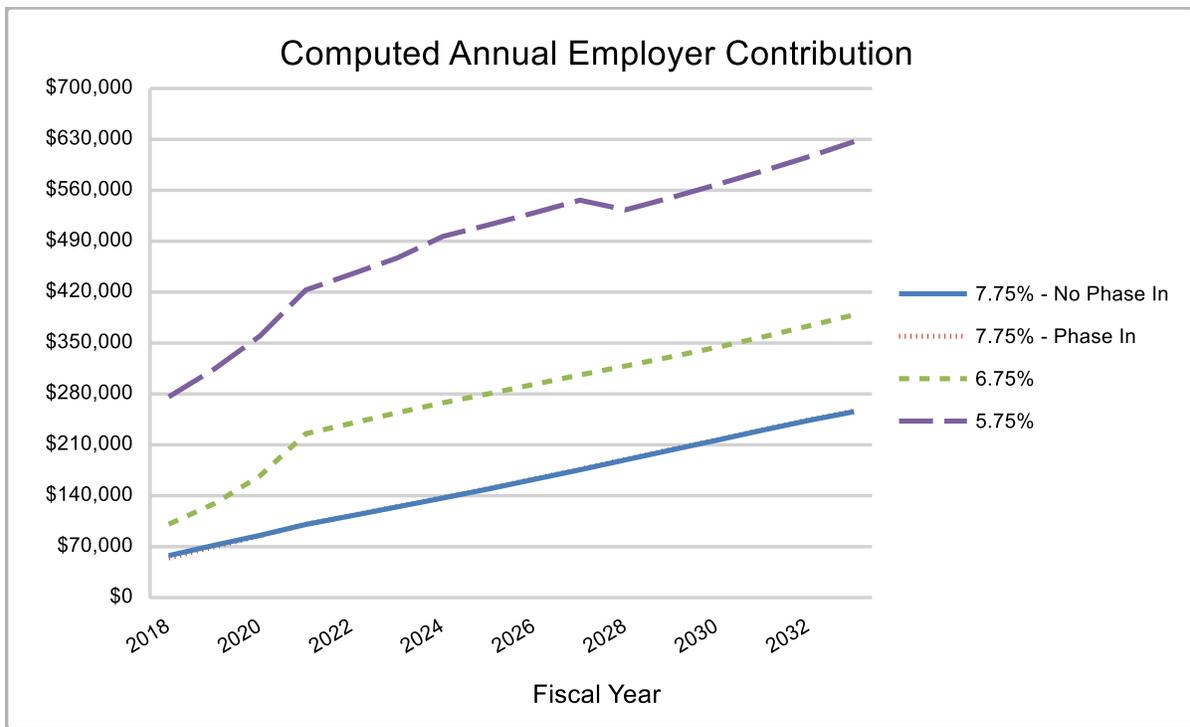
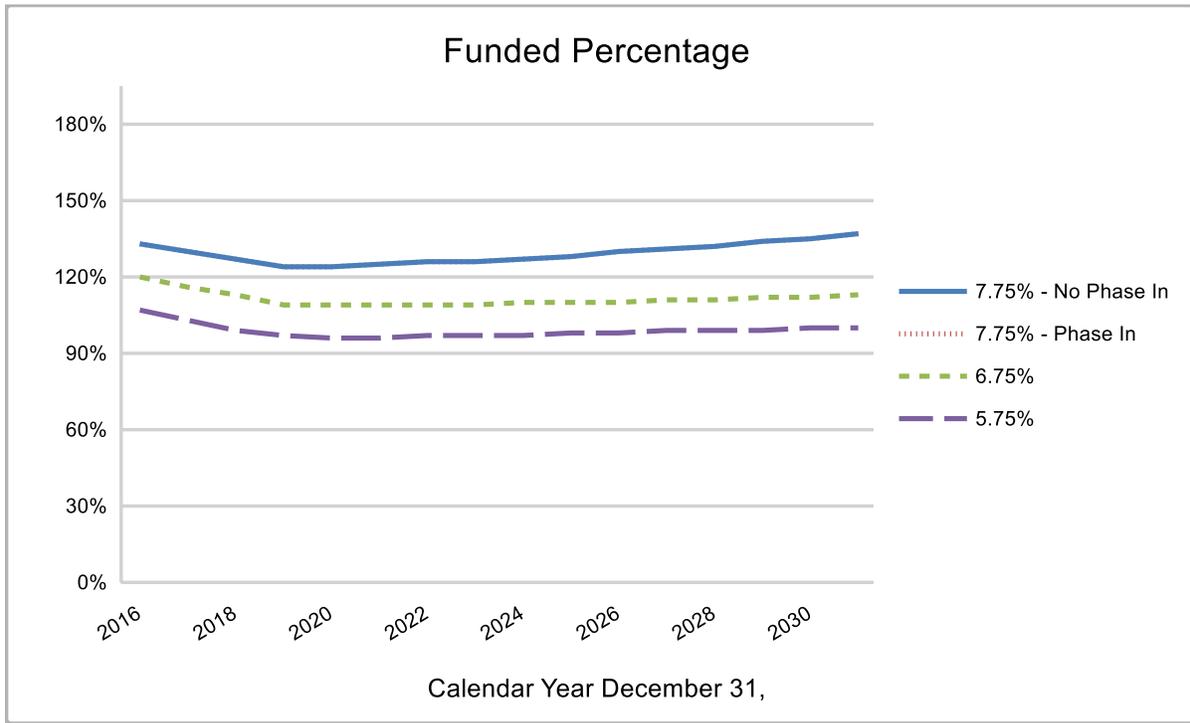
The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate assumed long-term investment return scenarios. All four projections take into account the past investment losses that will continue to 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	\$ 14,560,664	\$ 19,289,792	133%	\$ 54,576
2017	2019	15,000,000	19,400,000	130%	70,200
2018	2020	15,400,000	19,600,000	127%	85,000
2019	2021	15,900,000	19,700,000	124%	101,000
2020	2022	16,400,000	20,300,000	124%	113,000
2021	2023	16,800,000	21,000,000	125%	125,000
NO 5-YEAR PHASE-IN					
2016	2018	\$ 14,560,664	\$ 19,289,792	133%	\$ 57,708
2017	2019	15,000,000	19,400,000	130%	72,000
2018	2020	15,400,000	19,600,000	127%	85,600
2019	2021	15,900,000	19,700,000	124%	101,000
2020	2022	16,400,000	20,300,000	124%	112,000
2021	2023	16,800,000	21,000,000	125%	125,000
6.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2016	2018	\$ 16,147,944	\$ 19,289,792	120%	\$ 100,896
2017	2019	16,600,000	19,200,000	116%	129,000
2018	2020	17,100,000	19,200,000	113%	167,000
2019	2021	17,600,000	19,200,000	109%	225,000
2020	2022	18,100,000	19,700,000	109%	240,000
2021	2023	18,600,000	20,200,000	109%	254,000
5.75% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
NO 5-YEAR PHASE-IN					
2016	2018	\$ 18,032,069	\$ 19,289,792	107%	\$ 276,000
2017	2019	18,500,000	19,000,000	103%	314,000
2018	2020	19,000,000	18,900,000	99%	360,000
2019	2021	19,600,000	18,900,000	97%	423,000
2020	2022	20,100,000	19,400,000	96%	445,000
2021	2023	20,700,000	19,900,000	96%	467,000



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

Table 1

Division	Employer Contributions ¹			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In ⁵	Blended ER Rate With Phase-In ⁵	Employee Contribut. Rate	Employee Contribut. Conversion Factor ²
	Normal Cost	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In					
Percentage of Payroll								
01 - Gnrl Non Un	-	-	-	-	0.00%	0.00%	5.00%	
10 - Gnrl AFSCME	-	-	-	-	0.00%	0.00%	5.00%	
11 - Gnrl Dsptch	-	-	-	-			10.00%	
14 - Cty Mgr	-	-	-	-			0.00%	
15 - City Mgr. aft. 7/1	-	-	-	-			5.00%	
16 - AFSCME after 7/1/2	5.85%	-5.87%	0.00%	0.00%	0.00%	0.00%	5.00%	0.81%
17 - Non-Union after 1/	6.26%	0.12%	6.38%	6.08%	0.00%	0.00%	5.00%	0.85%
Estimated Monthly Contribution³								
01 - Gnrl Non Un	\$ 3,972	\$ (3,972)	\$ 0	\$ 0				
10 - Gnrl AFSCME	4,417	(4,417)	0	0				
11 - Gnrl Dsptch	0	0	0	0				
14 - Cty Mgr	0	226	226	178				
15 - City Mgr. aft. 7/1	0	0	0	0				
16 - AFSCME after 7/1/2	1,835	(1,840)	0	0				
17 - Non-Union after 1/	4,499	84	4,583	4,370				
Total Municipality	\$ 14,723	\$ (9,919)	\$ 4,809	\$ 4,548				
Estimated Annual Contribution³	\$ 176,676	\$ (119,028)	\$ 57,708	\$ 54,576				

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

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

³ For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (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 - Gnrl Non Un: Closed to new hires, linked to Division 17

	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):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	5%	5%
Act 88:	Yes (Adopted 2/7/1972)	Yes (Adopted 2/7/1972)

10 - Gnrl AFSCME: Closed to new hires, linked to Division 16

	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):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	5%	5%
Act 88:	Yes (Adopted 2/7/1972)	Yes (Adopted 2/7/1972)

11 - Gnrl Dspth: 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 20 and Out	55/15 20 and Out
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	10%	10%
Act 88:	Yes (Adopted 2/7/1972)	Yes (Adopted 2/7/1972)

Table 2 (continued)

14 - Cty Mgr: Closed to new hires, linked to Division 15

	2016 Valuation	2015 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	3 years	3 years
COLA for Future Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0%	0%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 10/1/2005)	Yes (Adopted 10/1/2005)

15 - City Mgr. aft. 7/1/2012: 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:	8 years	8 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5%	5%
RS50% Percentage:	50%	50%
Act 88:	Yes (Adopted 10/1/2005)	Yes (Adopted 10/1/2005)

16 - AFSCME after 7/1/2010: Open Division, linked to Division 10

	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	50/25
	55/15	55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	5%	5%
Act 88:	Yes (Adopted 2/7/1972)	Yes (Adopted 2/7/1972)

Table 2 (continued)**17 - Non-Union after 1/1/2013: Open Division, linked to Division 01**

	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):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	3 years	3 years
Employee Contributions:	5%	5%
Act 88:	Yes (Adopted 2/7/1972)	Yes (Adopted 2/7/1972)

Participant Summary

Table 3

Division	2016 Valuation		2015 Valuation		2016 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
01 - Gnrl Non Un							
Active Employees	12	\$ 798,737	13	\$ 869,354	55.6	19.6	19.6
Vested Former Employees	9	97,671	10	110,673	46.6	8.3	13.6
Retirees and Beneficiaries	27	376,904	29	388,165	75.5		
10 - Gnrl AFSCME							
Active Employees	15	\$ 692,746	15	\$ 691,487	46.8	13.6	13.6
Vested Former Employees	1	10,884	1	10,884	40.4	11.1	11.1
Retirees and Beneficiaries	20	346,619	23	382,404	68.2		
11 - Gnrl Dspth							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	5	26,082	5	26,082	40.8	5.3	11.9
Retirees and Beneficiaries	2	21,489	2	21,489	73.9		
14 - Cty Mgr							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	1	47,655	1	46,596	64.8		
15 - City Mgr. aft. 7/1/2							
Active Employees	0	\$ 0	1	\$ 100,014	0.0	0.0	0.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	1	8,560	0	0	64.4		
16 - AFSCME after 7/1/201							
Active Employees	7	\$ 259,369	6	\$ 205,852	34.3	1.9	1.9
Vested Former Employees	3	9,483	3	9,483	44.4	4.3	13.0
Retirees and Beneficiaries	0	0	0	0	0.0		
17 - Non-Union after 1/1/							
Active Employees	9	\$ 512,732	10	\$ 573,830	42.7	2.7	6.4
Vested Former Employees	1	4,272	0	0	40.5	3.3	10.8
Retirees and Beneficiaries	0	0	0	0	0.0		
Total Municipality							
Active Employees	43	\$ 2,263,584	45	\$ 2,440,537	46.4	11.1	11.9
Vested Former Employees	19	148,392	19	157,122	44.1	6.8	12.8
Retirees and Beneficiaries	51	801,227	55	838,654	72.2		
Total Participants	113		119				

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 - Gnrl Non Un	\$ 8,701,002	\$ 910,677	\$ 8,101,414	\$ 883,962
10 - Gnrl AFSCME	6,147,742	454,036	5,836,582	416,145
11 - Gnrl Dspch	473,346	94,024	437,042	93,232
14 - Cty Mgr	522,914	0	514,257	0
15 - City Mgr. aft. 7/1/2012	161,350	754	125,084	16,336
16 - AFSCME after 7/1/2010	206,563	61,697	180,439	48,430
17 - Non-Union after 1/1/2013	101,265	73,721	49,854	47,984
Municipality Total	\$ 16,314,182	\$ 1,594,909	\$ 15,244,672	\$ 1,506,089
Combined Reserves	\$ 17,909,091		\$ 16,750,761	

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		Employee Contributions	Investment Income	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2006	\$ 44,478		\$ 118,994	\$ 1,284,635	\$ (628,348)	\$ (35,205)	\$ 1	\$ 16,815,491
2007	26,695		123,481	1,363,331	(789,419)	(84,876)	0	17,454,703
2008	0		125,096	722,207	(771,554)	(9,105)	12,177	17,533,524
2009	0		121,435	679,741	(733,569)	(24,365)	0	17,576,766
2010	222		102,227	872,649	(732,612)	(23,580)	0	17,795,672
2011	222	\$ 0	99,202	857,598	(739,837)	(2,812)	0	18,010,045
2012	1,963	0	99,414	771,282	(804,123)	(3,964)	0	18,074,617
2013	0	0	108,988	1,049,864	(786,836)	(2,697)	17,585	18,461,521
2014	0	0	109,007	1,037,595	(813,912)	(1,011)	0	18,793,200
2015	16,097	0	118,024	905,580	(813,225)	(1,162)	0	19,018,514
2016	37,997	0	120,244	962,058	(825,912)	(23,109)	0	19,289,792

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 - Gnrl Non Un				
Active Employees	\$ 3,615,851	\$ 6,426,469	177.7%	\$ (2,810,618)
Vested Former Employees	465,081	465,081	100.0%	0
Retirees And Beneficiaries	3,365,094	3,365,094	100.0%	0
Pending Refunds	<u>96,047</u>	<u>96,047</u>	100.0%	<u>0</u>
Total	\$ 7,542,073	\$ 10,352,691	137.3%	\$ (2,810,618)
10 - Gnrl AFSCME				
Active Employees	\$ 2,198,654	\$ 3,610,221	164.2%	\$ (1,411,567)
Vested Former Employees	26,079	26,079	100.0%	0
Retirees And Beneficiaries	3,463,574	3,463,574	100.0%	0
Pending Refunds	<u>10,868</u>	<u>10,868</u>	100.0%	<u>0</u>
Total	\$ 5,699,175	\$ 7,110,742	124.8%	\$ (1,411,567)
11 - Gnrl Dspth				
Active Employees	\$ 0	\$ 298,257	0.0%	\$ (298,257)
Vested Former Employees	108,238	108,238	100.0%	0
Retirees And Beneficiaries	187,022	187,022	100.0%	0
Pending Refunds	<u>17,594</u>	<u>17,594</u>	100.0%	<u>0</u>
Total	\$ 312,854	\$ 611,111	195.3%	\$ (298,257)
14 - Cty Mgr				
Active Employees	\$ 0	\$ 0	0.0%	\$ 0
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	597,458	563,228	94.3%	34,230
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 597,458	\$ 563,228	94.3%	\$ 34,230
15 - City Mgr. aft. 7/1/2012				
Active Employees	\$ 0	\$ 77,106	0.0%	\$ (77,106)
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	97,495	97,495	100.0%	0
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 97,495	\$ 174,601	179.1%	\$ (77,106)
16 - AFSCME after 7/1/2010				
Active Employees	\$ 62,383	\$ 247,304	396.4%	\$ (184,921)
Vested Former Employees	41,278	41,278	100.0%	0
Retirees And Beneficiaries	0	0	0.0%	0
Pending Refunds	<u>360</u>	<u>360</u>	100.0%	<u>0</u>
Total	\$ 104,021	\$ 288,942	277.8%	\$ (184,921)

Table 6 (continued)

Division	Actuarial Accrued Liability	Valuation Assets¹	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
17 - Non-Union after 1/1/2013				
Active Employees	\$ 196,652	\$ 177,541	90.3%	\$ 19,111
Vested Former Employees	10,293	10,293	100.0%	0
Retirees And Beneficiaries	0	0	0.0%	0
Pending Refunds	<u>643</u>	<u>643</u>	100.0%	<u>0</u>
Total	\$ 207,588	\$ 188,477	90.8%	\$ 19,111
Total Municipality				
Active Employees	\$ 6,073,540	\$ 10,836,898	178.4%	\$ (4,763,358)
Vested Former Employees	650,969	650,969	100.0%	0
Retirees and Beneficiaries	7,710,643	7,676,413	99.6%	34,230
Pending Refunds	<u>125,512</u>	<u>125,512</u>	100.0%	<u>0</u>
Total Participants	\$ 14,560,664	\$ 19,289,792	132.5%	\$ (4,729,128)
The following results show the combined accrued liabilities and assets for each set of linked divisions. These results are already included in the table above.				
Linked Divisions 17, 01				
Active Employees	\$ 3,812,503	\$ 6,604,010	173.2%	\$ (2,791,507)
Vested Former Employees	475,374	475,374	100.0%	0
Retirees and Beneficiaries	3,365,094	3,365,094	100.0%	0
Pending Refunds	<u>96,690</u>	<u>96,690</u>	100.0%	<u>0</u>
Total	\$ 7,749,661	\$ 10,541,168	136.0%	\$ (2,791,507)
Linked Divisions 16, 10				
Active Employees	\$ 2,261,037	\$ 3,857,525	170.6%	\$ (1,596,488)
Vested Former Employees	67,357	67,357	100.0%	0
Retirees and Beneficiaries	3,463,574	3,463,574	100.0%	0
Pending Refunds	<u>11,228</u>	<u>11,228</u>	100.0%	<u>0</u>
Total	\$ 5,803,196	\$ 7,399,684	127.5%	\$ (1,596,488)
Linked Divisions 15, 14				
Active Employees	\$ 0	\$ 77,106	0.0%	\$ (77,106)
Vested Former Employees	0	0	0.0%	0
Retirees and Beneficiaries	694,953	660,723	95.1%	34,230
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 694,953	\$ 737,829	106.2%	\$ (42,876)

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	\$ 9,556,377	\$ 14,404,059	151%	\$ (4,847,682)
2003	9,888,040	15,107,484	153%	(5,219,444)
2004	10,303,544	15,678,721	152%	(5,375,177)
2005	10,301,827	16,030,936	156%	(5,729,109)
2006	11,271,094	16,815,491	149%	(5,544,397)
2007	11,905,095	17,454,703	147%	(5,549,608)
2008	11,975,264	17,533,524	146%	(5,558,260)
2009	11,686,193	17,576,766	150%	(5,890,573)
2010	11,787,614	17,795,672	151%	(6,008,058)
2011	12,209,422	18,010,045	148%	(5,800,623)
2012	12,460,118	18,074,617	145%	(5,614,499)
2013	12,834,271	18,461,521	144%	(5,627,250)
2014	13,407,385	18,793,200	140%	(5,385,815)
2015	14,783,387	19,018,514	129%	(4,235,127)
2016	14,560,664	19,289,792	133%	(4,729,128)

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

Division 01 - Grnl Non Un

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	\$ 5,801,217	\$ 10,029,528	173%	\$ (4,228,311)
2007	6,391,791	9,293,604	145%	(2,901,813)
2008	6,210,247	9,335,311	150%	(3,125,064)
2009	6,268,919	9,359,881	149%	(3,090,962)
2010	6,362,431	9,488,714	149%	(3,126,283)
2011	6,498,651	9,614,038	148%	(3,115,387)
2012	6,401,591	9,588,005	150%	(3,186,414)
2013	6,660,607	9,800,537	147%	(3,139,930)
2014	6,928,425	10,038,634	145%	(3,110,209)
2015	7,743,049	10,201,834	132%	(2,458,785)
2016	7,542,073	10,352,691	137%	(2,810,618)

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		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2006	21	\$ 1,079,982	0.00%	5.00%
2007	24	1,357,033	0.00%	5.00%
2008	20	1,132,044	0.00%	5.00%
2009	18	1,075,646	0.00%	5.00%
2010	19	1,093,543	0.00%	5.00%
2011	19	1,028,607	0.00%	5.00%
2012	16	924,909	\$ 0	5.00%
2013	15	904,114	\$ 0	5.00%
2014	14	891,907	\$ 0	5.00%
2015	13	869,354	\$ 0	5.00%
2016	12	798,737	\$ 0	5.00%

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

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

Note: The contributions shown in Table 9 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 41 for past benefit provision changes.

Division 10 - Gnrl AFSCME

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	\$ 4,809,149	\$ 6,273,360	130%	\$ (1,464,211)
2007	4,844,654	7,136,997	147%	(2,292,343)
2008	4,986,779	7,122,028	143%	(2,135,249)
2009	4,626,027	7,093,079	153%	(2,467,052)
2010	4,729,947	7,138,749	151%	(2,408,802)
2011	4,989,033	7,188,356	144%	(2,199,323)
2012	5,203,440	7,010,389	135%	(1,806,949)
2013	5,213,584	7,058,618	135%	(1,845,034)
2014	5,467,240	7,104,391	130%	(1,637,151)
2015	5,853,967	7,099,234	121%	(1,245,267)
2016	5,699,175	7,110,742	125%	(1,411,567)

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	27	\$ 949,517	0.00%	5.00%
2007	26	893,285	0.00%	5.00%
2008	26	986,554	0.00%	5.00%
2009	24	926,113	0.00%	5.00%
2010	23	895,843	0.00%	5.00%
2011	22	876,718	0.00%	5.00%
2012	22	906,353	\$ 0	5.00%
2013	17	726,722	\$ 0	5.00%
2014	17	769,034	\$ 0	5.00%
2015	15	691,487	\$ 0	5.00%
2016	15	692,746	\$ 0	5.00%

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

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

Note: The contributions shown in Table 9 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 41 for past benefit provision changes.

Division 11 - Gnrl Dsptch

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	\$ 342,305	\$ 339,156	99%	\$ 3,149
2007	346,651	519,539	150%	(172,888)
2008	384,305	534,957	139%	(150,652)
2009	392,310	553,574	141%	(161,264)
2010	286,648	563,404	197%	(276,756)
2011	285,891	568,828	199%	(282,937)
2012	285,326	571,870	200%	(286,544)
2013	285,030	583,516	205%	(298,486)
2014	285,182	594,895	209%	(309,713)
2015	309,999	602,064	194%	(292,065)
2016	312,854	611,111	195%	(298,257)

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 December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2006	3	\$ 113,324	7.34%	4.85%
2007	4	153,018	0.00%	10.00%
2008	4	164,647	0.00%	10.00%
2009	4	175,197	0.00%	10.00%
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	10.00%
2016	0	0	\$ 0	10.00%

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

See the Benefit Provision History on page 41 for past benefit provision changes.

Division 14 - Cty Mgr

Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2006	\$ 318,423	\$ 173,447	54%	\$ 144,976
2007	321,999	504,563	157%	(182,564)
2008	393,933	541,228	137%	(147,295)
2009	398,937	570,232	143%	(171,295)
2010	408,588	604,805	148%	(196,217)
2011	435,847	638,823	147%	(202,976)
2012	561,182	624,994	111%	(63,812)
2013	564,852	614,843	109%	(49,991)
2014	566,407	603,142	107%	(36,735)
2015	596,626	583,878	98%	12,748
2016	597,458	563,228	94%	34,230

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		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2006	1	\$ 107,261	22.71%	0.00%
2007	1	98,574	0.00%	0.00%
2008	1	110,579	0.45%	0.00%
2009	1	112,198	0.00%	0.00%
2010	1	99,653	0.00%	0.00%
2011	1	106,212	0.00%	0.00%
2012	0	0	\$ 0	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 79	0.00%
2016	0	0	\$ 226	0.00%

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

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

Note: The contributions shown in Table 9 for the 12/31/2015 through 12/31/2019 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 41 for past benefit provision changes.

Division 15 - City Mgr. aft. 7/1/2012

Table 8-15: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ (967)	\$ 121,181	0%	\$ (122,148)
2013	16,596	134,205	809%	(117,609)
2014	36,606	147,258	402%	(110,652)
2015	63,018	160,566	255%	(97,548)
2016	97,495	174,601	179%	(77,106)

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

Table 9-15: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	1	\$ 90,619	0.00%	5.00%
2013	1	93,500	0.00%	5.00%
2014	1	93,644	0.85%	5.00%
2015	1	100,014	4.95%	5.00%
2016	0	0	\$ 0	5.00%

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

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

Note: The contributions shown in Table 9 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 41 for past benefit provision changes.

Division 16 - AFSCME after 7/1/2010

Table 8-16: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 0	\$ 153,232	0%	\$ (153,232)
2013	53,995	219,375	406%	(165,380)
2014	46,437	238,132	513%	(191,695)
2015	68,992	259,854	377%	(190,862)
2016	104,021	288,942	278%	(184,921)

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

Table 9-16: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	0	\$ 0	0.00%	0.00%
2013	3	104,597	0.00%	5.00%
2014	3	98,634	0.00%	5.00%
2015	6	205,852	0.00%	5.00%
2016	7	259,369	0.00%	5.00%

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

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

Note: The contributions shown in Table 9 for the 12/31/2015 through 12/31/2019 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 41 for past benefit provision changes.

Division 17 - Non-Union after 1/1/2013

Table 8-17: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2012	\$ 9,546	\$ 4,946	52%	\$ 4,600
2013	39,607	50,427	127%	(10,820)
2014	77,088	66,748	87%	10,340
2015	147,736	111,084	75%	36,652
2016	207,588	188,477	91%	19,111

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

Table 9-17: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2012	1	\$ 24,723	7.37%	5.00%
2013	6	281,732	6.13%	5.00%
2014	5	262,838	7.49%	5.00%
2015	10	573,830	6.87%	5.00%
2016	9	512,732	6.38%	5.00%

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

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

Note: The contributions shown in Table 9 for the 12/31/2015 through 12/31/2019 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 41 for past benefit provision changes.

Division 01 - Gnrl Non Un

Table 10-01: 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
Initial	12/31/2015	\$ (2,458,785)	10	\$ (2,519,155)	10	\$ (308,136)
Gain/Loss	12/31/2016	(229,202)	15	(256,356)	15	(22,812)
Total				\$ (2,775,511)		\$ (330,948)

* 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 AFSCME

Table 10-10: 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
Initial	12/31/2015	\$ (1,245,267)	10	\$ (1,241,412)	10	\$ (151,848)
Gain/Loss	12/31/2016	(127,107)	15	(142,166)	15	(12,648)
Total				\$ (1,383,578)		\$ (164,496)

* 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 - Gnrl Dsptch

Table 10-11: 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
Initial	12/31/2015	\$ (292,065)	10	\$ (310,715)	10	\$ (38,004)
Gain/Loss	12/31/2016	16,472	10	18,424	10	2,256
Total				\$ (292,291)		\$ (35,748)

* 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 - Cty Mgr

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
Initial	12/31/2015	\$ 12,748	23	\$ 14,389	20	\$ 1,044
Gain/Loss	12/31/2016	20,508	20	22,938	20	1,668
Total				\$ 37,327		\$ 2,712

* 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 15 - City Mgr. aft. 7/1/2012

Table 10-15: 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
Initial	12/31/2015	\$ (97,548)	10	\$ (81,620)	10	\$ (9,984)
Gain/Loss	12/31/2016	5,456	10	6,102	10	744
Total				\$ (75,518)		\$ (9,240)

* 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 16 - AFSCME after 7/1/2010

Table 10-16: 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
Initial	12/31/2015	\$ (190,862)	10	\$ (185,902)	10	\$ (22,740)
Gain/Loss	12/31/2016	6,579	15	7,358	15	660
Total				\$ (178,544)		\$ (22,080)

* 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 17 - Non-Union after 1/1/2013

Table 10-17: 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
Initial	12/31/2015	\$ 36,652	23	\$ 36,058	22	\$ 2,460
Gain/Loss	12/31/2016	(19,106)	22	(21,370)	22	(1,452)
Total				\$ 14,688		\$ 1,008

* 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:	51
Inactive employees entitled to but not yet receiving benefits:	19
Active employees:	<u>43</u>
	113

Total Pension Liability as of 12/31/2015 measurement date:	\$ 14,421,423
Total Pension Liability as of 12/31/2016 measurement date:	\$ 14,203,912
Service Cost for the year ending on the 12/31/2016 measurement date:	\$ 270,060

Change in the Total Pension Liability due to:

- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ (769,107)
- 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):	3
Covered employee payroll: (Needed for Required Supplementary Information)	\$ 2,263,584

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:	\$ 1,521,858	-	\$ (1,284,934)

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 - Gnrl Non Un

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2013	Day of work defined as 8 Hours a Day for All employees.
4/1/2006	Benefit B-4 (80% max)
4/1/2006	Member Contribution Rate 5.00%
9/1/2000	Temporary Benefit B-4 (80% max) (09/01/2000 - 12/03/2000)
1/1/1999	Benefit F50 (With 25 Years of Service)
1/1/1994	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1990	Benefit B-3 (80% max)
3/1/1985	Benefit F55 (With 15 Years of Service)
2/7/1972	Covered by Act 88
6/1/1967	Benefit C-1 (Old)
5/1/1946	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
5/1/1946	Fiscal Month - July
5/1/1946	Benefit FAC-5 (5 Year Final Average Compensation)
5/1/1946	10 Year Vesting
5/1/1946	Benefit C (Old)

10 - Gnrl AFSCME

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2006	Benefit B-4 (80% max)
1/1/2006	Member Contribution Rate 5.00%
9/1/2000	Temporary Benefit B-4 (80% max) (09/01/2000 - 12/03/2000)
1/1/1999	Benefit F50 (With 25 Years of Service)
7/1/1991	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1990	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1990	10 Year Vesting
1/1/1990	Benefit B-3 (80% max)
1/1/1990	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
1/1/1985	Benefit F55 (With 15 Years of Service)
2/7/1972	Covered by Act 88
5/1/1946	Fiscal Month - July

11 - Gnrl Dsptch

12/1/2016	Service Credit Purchase Estimates - Yes
5/1/2007	Member Contribution Rate 10.00%
1/1/2000	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/1999	20 Years & Out
7/1/1991	Benefit B-3 (80% max)
7/1/1991	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
7/1/1990	Benefit FAC-5 (5 Year Final Average Compensation)

11 - Gnrl Dsptch

7/1/1990	10 Year Vesting
7/1/1990	2.25% Multiplier (no max)
10/1/1985	Benefit F55 (With 15 Years of Service)
2/7/1972	Covered by Act 88
5/1/1946	Fiscal Month - July

14 - Cty Mgr

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2006	E2 2.5% COLA for future retirees (10/01/2005)
10/1/2005	Covered by Act 88
10/1/2005	Day of work defined as 8 Hours a Day for All employees.
10/1/2005	Benefit FAC-3 (3 Year Final Average Compensation)
10/1/2005	Benefit RS 50 (50% Post-Ret. Spouse Benefits)
10/1/2005	8 Year Vesting
10/1/2005	Benefit B-4 (80% max)
10/1/2005	Benefit F55 (With 15 Years of Service)
10/1/2005	Member Contribution Rate 0.00%
5/1/1946	Fiscal Month - July

15 - City Mgr. aft. 7/1/2012

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2012	Day of work defined as 8 Hours a Day for All employees.
7/1/2012	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/2012	Benefit RS 50 (50% Post-Ret. Spouse Benefits)
7/1/2012	8 Year Vesting
7/1/2012	Benefit B-3 (80% max)
7/1/2012	Member Contribution Rate 5.00%
10/1/2005	Covered by Act 88
5/1/1946	Fiscal Month - July

16 - AFSCME after 7/1/2010

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2010	Day of work defined as 8 Hours a Day for All employees.
7/1/2010	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/2010	Benefit B-2
7/1/2010	Benefit F50 (With 25 Years of Service)
7/1/2010	Benefit F55 (With 15 Years of Service)
1/1/2010	10 Year Vesting
1/1/2010	Member Contribution Rate 5.00%
2/7/1972	Covered by Act 88
5/1/1946	Fiscal Month - July

17 - Non-Union after 1/1/2013

12/1/2016	Service Credit Purchase Estimates - Yes
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17 - Non-Union after 1/1/2013

1/1/2013	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2013	10 Year Vesting
1/1/2013	Benefit B-2
1/1/2013	Benefit F55 (With 25 Years of Service)
1/1/2013	Member Contribution Rate 5.00%
2/7/1972	Covered by Act 88
5/1/1946	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	3.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	100%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Divisions

Closed Division	Amortization Option
11 - Gnrl Dsptch	Accelerated to 5-Year Amortization
15 - City Mgr. aft. 7/1/2012	Accelerated to 15-Year Amortization